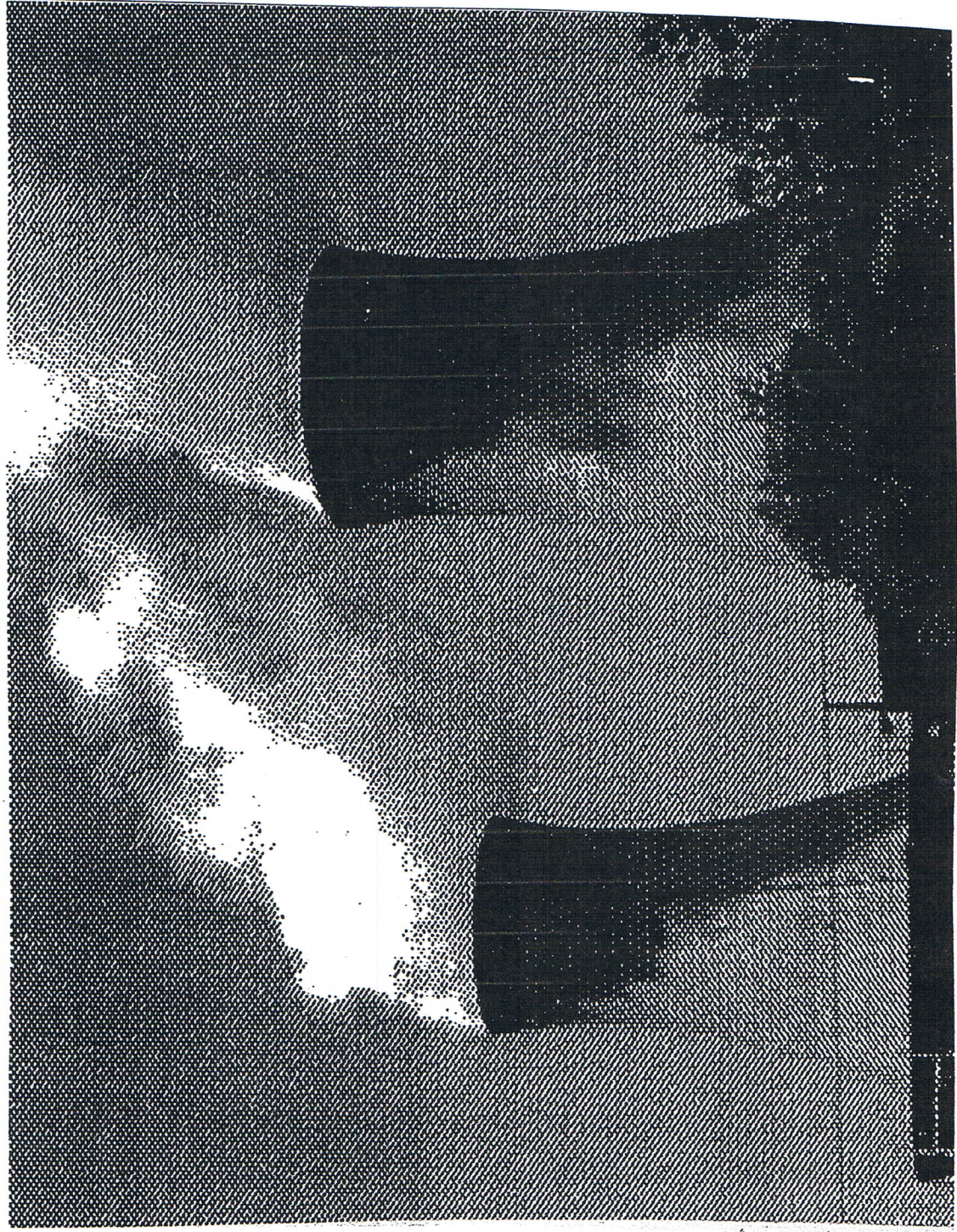


Hidden Releases **Radioactive and Toxic Chemicals** **Routine and Accidental**



Major Air Polluter

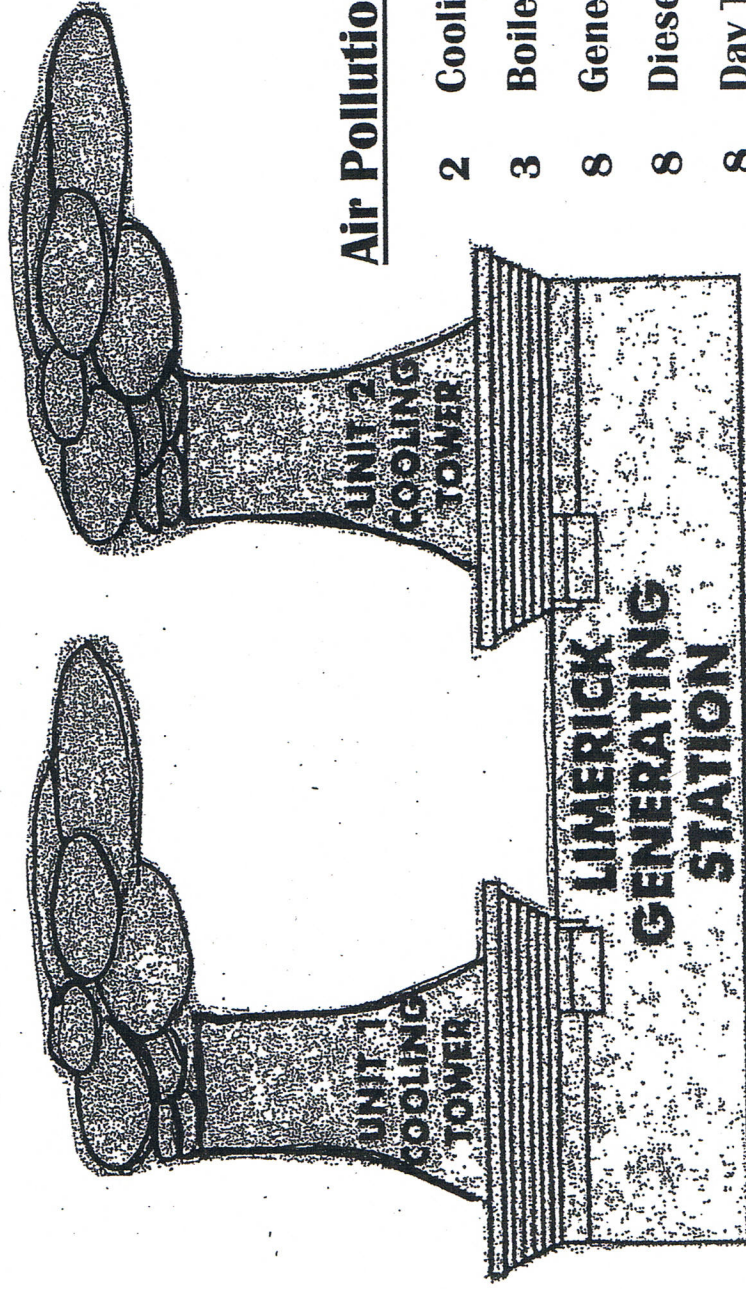
Limerick Nuclear Plant

Air Pollutants

• **RADIATION**

- NOx
- VOCs
- PM10
- SO2
- Arsenic
- Cadmium
- Chromium
- Lead
- PCBs
- Halogens

All Have Harmful Health Impacts!



Air Pollution Sources

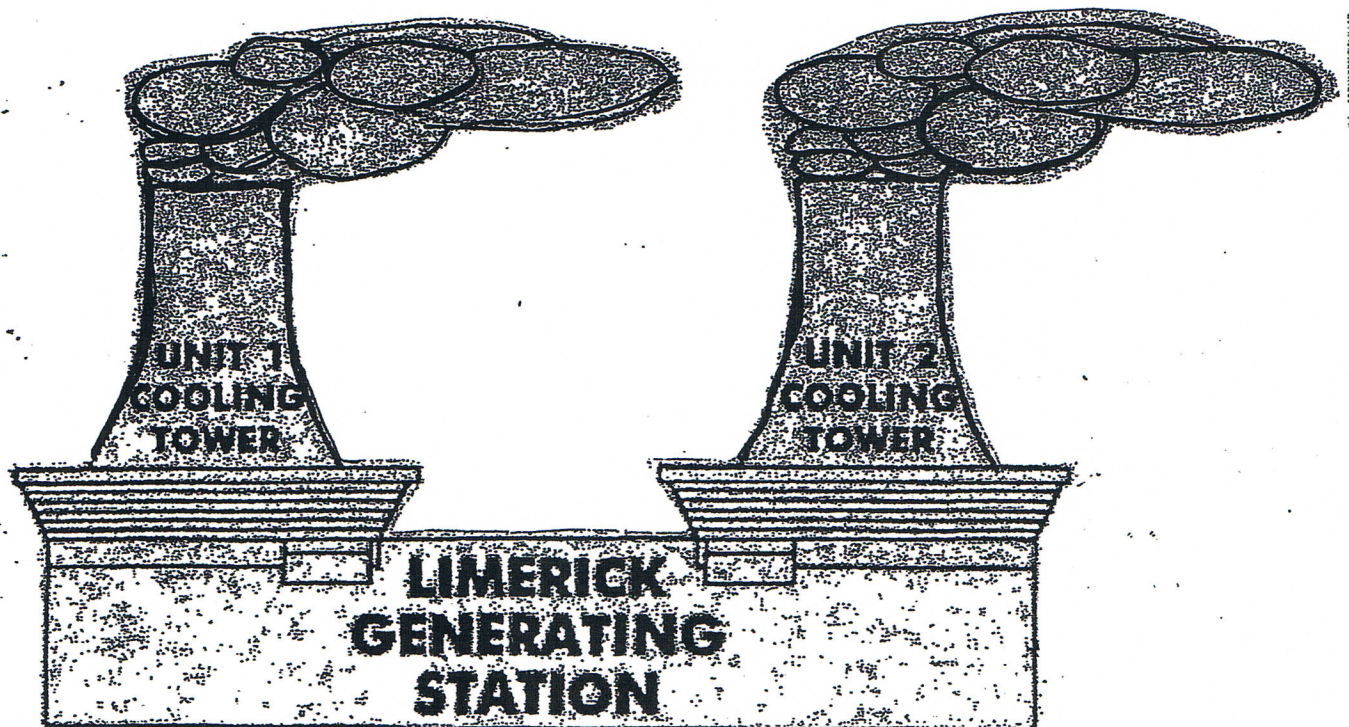
2	Cooling Towers
3	Boilers
8	Generators
8	Diesel Oil Tanks
8	Day Tanks
1	Degreasing Unit
1	Emergency Spray Pond
Various Waste Oil Sources	

**Synergistic, Additive, Cumulative
Harmful Health Impacts Unknown,
But Undoubtedly Significant**

Limerick Nuclear Plant

A Major Air Pollution Source

- **Synergistic, Additive, Cumulative Harmful Health Impacts Unknown, But Undoubtedly Significant**
- **Fetuses and Children The Most Impacted Victims**
- **Those Already With Cancer and Other Environmentally Linked Illnesses Also At Greater Risk**



Limerick Nuclear Power Plant's COOLING TOWER DRIFT

DRIFT IS SPRAY DROPLETS – NOT VAPOR
Drift Droplets Are Contaminated With Everything In The System

Radiological and Toxic Chemicals **Are Carried Into The Air With Limerick's Drift**

Toxic Chemicals In Limerick Nuclear Plant's Drift Come From:

- Schuylkill River Water Withdrawn
56.2 Million Gallons Per Day 20 ½ Billion Gallons Per Year
- Chemicals Added To Cooling Towers
324 Pounds Used EACH DAY 118,260 Pounds Used PER YEAR

What Health Risks Do We Face From Limerick Steam and Drift?

Limerick Emits Up To 42 Million Gallons Per Day Toxic Filled Steam - Over 15 Billion Gallons Per Year

PM10 in Drift Can Contain:

- **Radiation** – Examples: Radioactive Iodine 131 – Major Isotope Known To Be Released
 - o Radioactive Crypton – Upsets of electromagnetic imbalance
- **Heavy Metals**
- **Microbes** (Including Viruses) from river water intake
- **Toxic Chemicals** (Chlorine, Bromine, Anti-Rust, etc.) added to protect the cooling towers

There Is NO Filtration - Exposure Risk Is Unknown

- **WHY Is PM10 (Particulate Matter) The Only Cooling Tower Air Pollutant Reported By Exelon?**
- **WHY Are PM 10 Emissions ESTIMATED, NOT MEASURED?**

Toxics Synergize and Blow Sideways at Far Distances

DRIFT Travels From One County and Even Country to Another

- **Dispute Over Russian Border** - 1 country complained about cooling towers contaminating their side of the border.
- **Levels over site boundary were greater than permitted** - Maine Yankee violations led to company stopping using one chemical after testing

How far are drift toxics carried from Limerick Nuclear Plant?

- 2 Cooling Towers Are 500 Feet High (Comparable to a Building over 40 Stories High)
 - **Independent measurements are needed over Limerick Nuclear Plant site boundary**

TOXICS CONCENTRATE When They Hit Land and Dry.

- River Bend - Needed a separate parking lot to shelter cars due to active concentrations

Particulate Matter PM10

Limerick Nuclear Power Plant Emits PM10 From:

- **2 Cooling Towers**
- **3 Boilers**
- **8 Generators**
- **Emergency Spray Pond**

**How Much PM 10 Is Emitting
From All These sources?**

NO ONE KNOWS FOR SURE! WHY?

**Exelon
“ESTIMATES” and “CALCULATES”
Limerick's PM10 Emissions**

PM10

Particulate Matter Tiny Airborne Particles

**Penetrates Deep Into Lungs
And Enters The Bloodstream**

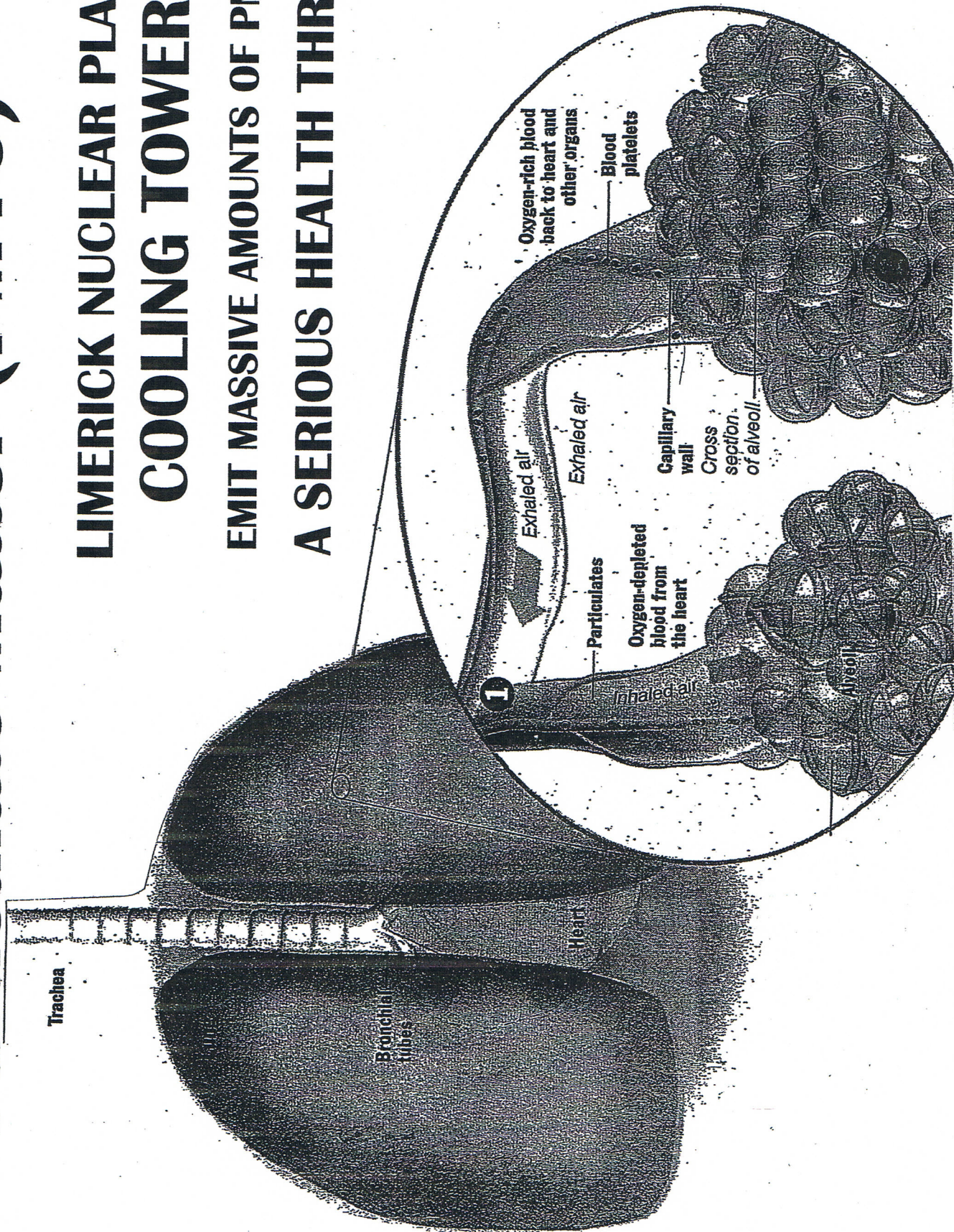
Transports Radiation, Heavy Metals, Etc.

Long Term PM 10 Health Effects Are Linked To:

- **Increased Heart Attacks**
- **Strokes**
- **Aggravates Asthma**
- **Inflames The Lungs Like A Sunburn On Skin**
- **Increased Respiratory Disease**
- **Decreased Lung Function**
- **Increased Hospital Admission**
- **Increased Emergency Room Visits**
- **Premature Death**
Blamed For Thousands Of Deaths Each Year

Particulate Matter (PM10)

**LIMERICK NUCLEAR PLANT'S
COOLING TOWERS
EMIT MASSIVE AMOUNTS OF PM-10
A SERIOUS HEALTH THREAT**



Fetal Deaths Climb with Air Pollution

Science News, Vol. 153

SUNDAY
\$1.50

The Mercury

<http://www.pottsmmerc.com>

FEBRUARY 28, 1999

A PULITZER PRIZE-WINNING NEWSPAPER

POTTSTOWN,

Too many baby deaths in Pottstown

"This is embarrassing. This county is too wealthy and too educated to have this happen. For a county this wealthy we need to do better."

—James W. Maza

By CARL HESSLER JR.
Mercury Staff Writer

NORRISTOWN — Despite health department efforts to curb infant deaths in Pottstown during the last several years, Pottstown continues to have a higher than average infant mortality rate.

And those babies born to black mothers are dying more often than babies born to white mothers.

"This is embarrassing. This county

is too wealthy and too educated to have this happen. For a county this wealthy we need to do better," Democratic commissioner James W. Maza said when confronted with infant mortality statistics.

According to statistics compiled by the Montgomery County Health Department, the Pottstown area averaged 7.9 infant deaths for every 1,000 live births between 1987 and 1996, the last year for which statistics are available.

The Pottstown area includes Pottstown, Lower Pottsgrove, Upper Pottsgrove and West Pottsgrove.

Overall, the countywide infant mortality rate (deaths of children under age 1) during the same time period was 7.0. The white infant mortality rate countywide was 6.2 and the black infant mortality rate was 15.2.

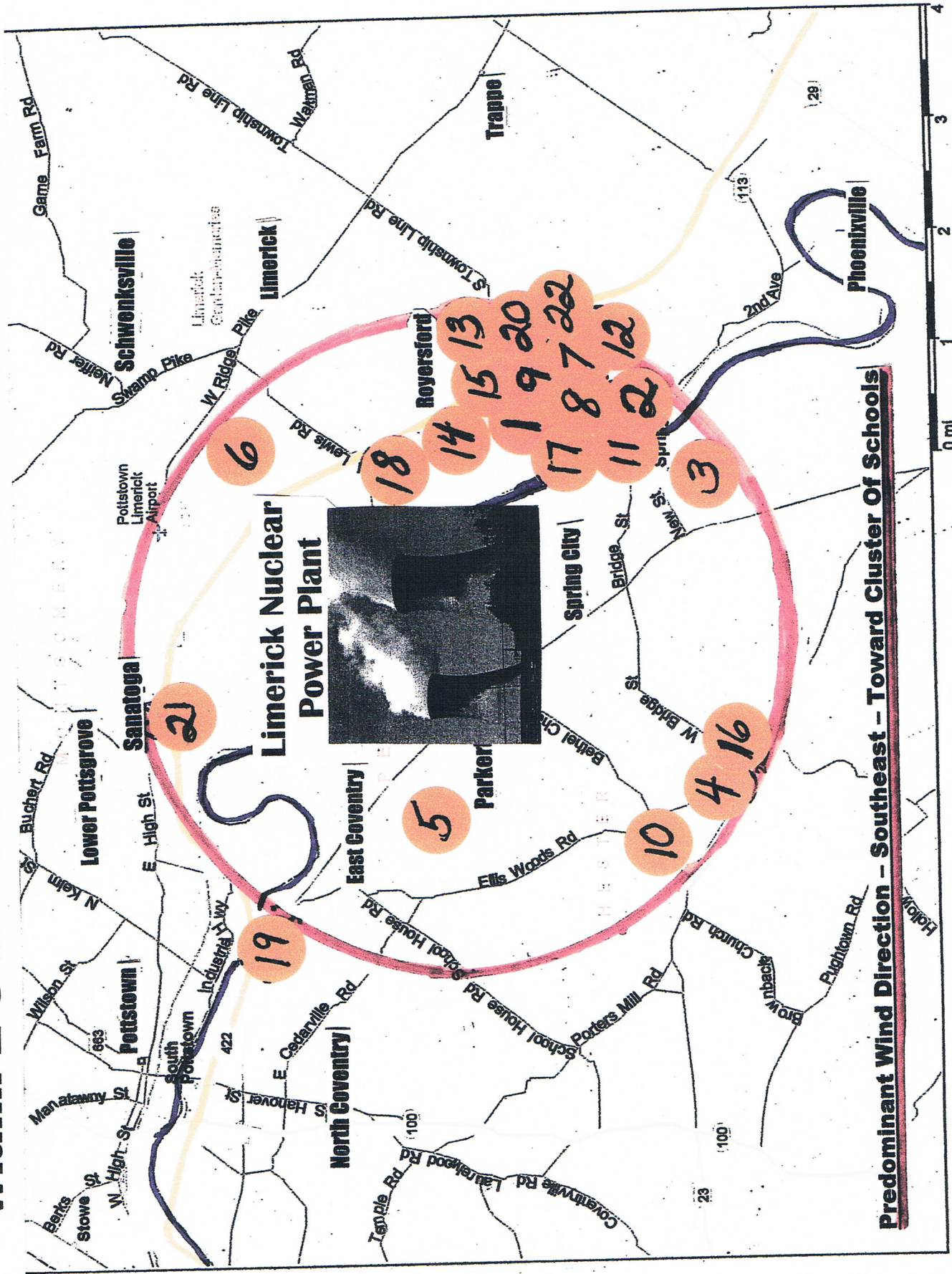
The statistics indicated that in the Pottstown area, the white infant mortality rate was 6.8 deaths per 1,000

live births between 1987 and 1996, while the black infant mortality rate was 15.1 per 1,000 live births.

Robert Gage, director of the county health department, said health officials have been working intensely since 1987 to try to decrease the infant mortality rates. The department has a program where public health nurses visit pregnant women to

(See INFANT MORTALITY on A3)

Schools, Pre-Schools, Daycare Centers Within 2-3 Miles Of Limerick Nuclear Power Plant



CHILDREN MOST AT RISK

22 Schools, Pre-Schools, and Daycare Centers Are Within 3 Miles Of Limerick Nuclear Power Plant's Routine Radiation Emissions and Other Dangerous Air Pollution

Most Schools Are In The Predominant Wind Direction

1.	Brooke Elementary	339 Lewis Road
2.	Royersford Elementary	450 S. Spring Street
3.	Spring City Elementary	190 S. Wall Street
4.	Vincent Elementary	340 Ridge Road
5.	East Coventry Elementary	932 Sanatoga Road
6.	Limerick Elementary	81 N. Limerick Center Road
7.	Spring-Ford High School	350 S. Lewis Road
8.	Spring-Ford Intermediate School	700 Washington Street
9.	Sacred Heart School	Lewis Road and Washington Street
10.	Montessori Academy	952 Bethel Church Road
11.	Episcopal Nursery School	209 S. 3 rd Avenue Royersford
12.	Royersford Baptist Church RBC	452 Lewis Road
13.	Chesterbrook Academy	70 Buckwalter Road
14.	Country Tyme Early Education Center	441 N. Lewis Road
15.	The Goddard School	197 Royersford Road
16.	Grace Assembly Daycare	Route 23 and W. Bridge Street
17.	Kids Kare Korner	380 Church Street
18.	Malvern School	538 N. Lewis Road
19.	Our House Early Learning Center	1426 New Schuylkill Road
20.	Tiny Treasures	1030 Main Street
21.	Wee Care Child Development Center	2573 E. High Street
22.	Wonder Years Preschool and Learning Center	433 S. Lewis Road

Air pollution 'can thicken blood'

Air pollution thickens the blood and increases the likelihood of inflammation, according to research.

Pollution can penetrate deep into the body.

The study may help explain why poor air is linked to an increased risk of heart attacks and stroke, as well as worsening respiratory problems.

University of Edinburgh researchers focused on **ultra-fine pollutants known as particulate matter, which they say may be able to alter cell function.**

Details are carried in the Occupational and Environmental Medicine journal.

The researchers tested the inflammatory and blood clotting responses of human immune cells called macrophages, lung cells and cells taken from the umbilical cord.

Each was tested six and 24 hours after exposure to particulate matter.

The results showed that levels of clotting factors, which thicken the blood, were raised in almost all the cell types.

The rate of death in immune cells also significantly increased, and exposure to the pollutants boosted inflammatory activity.

The researchers say their findings strongly suggest that particulate matter has the ability to alter cell function.

Deep penetration

They believe that factors which trigger clotting may also trigger inflammation, and vice versa, so that if one begins to take hold, it is highly likely that the other will follow.

Recent research has shown that particulate matter is so tiny that, when inhaled, it can pass through the lungs directly into the bloodstream.

This may mean that its effect on macrophages could be deadly in people who are at risk of heart disease.

Air Pollution Linked to Stroke

**Air Pollution May Increase Your Chance of Stroke,
Especially on Warm Days.**

Air Pollution May Increase Your Chance of Stroke,
Especially on Warm Days

By Daniel DeNoon
WebMD Medical News Reviewed By Brunilda Nazario, MD
on Friday, October 10, 2003

Oct. 10, 2003 -- Air pollution causes lung disease. Air pollution causes heart disease. And now, it seems, air pollution causes stroke, too.

Kaohsiung is Taiwan's second largest city. It's the heart of Taiwan's heavy industry. A four-year study of hospital admissions in Kaohsiung shows that hospital admissions for stroke skyrocket on days when the air pollution is bad.

The findings come from researchers led by Chun-Yuh Yang, PhD, MPH, director and dean of the Institute of Public Health, Kaohsiung Medical University. They appear in this week's rapid access issue of Stroke: Journal of the American Heart Association.

"Particulate matter and nitrogen dioxide seem to be the most important pollutants, and the effects appear to be stronger on warm days," Yang says in a news release.

Stroke is disease that affects the blood vessels of the brain. A stroke can occur when a blood vessel that supplies oxygen to the brain bursts or when it gets clogged with a blood clot.

Air pollution had the strongest effect on burst blood vessels in the brain. But there was also an effect on blood clots blocking blood flow to the brain.

What happens? Yang and colleagues speculate that air pollution irritates and inflame small structures deep inside the lung. This causes an increase in blood coagulation, making blood clots more likely. Pollution thickens the blood and increases the heart rate. This may cause clots to break loose and enter the circulation.

Whatever the mechanism, it's pretty clear that bad air is bad for you.

"In hot weather, we recommend that people avoid pollution, stay inside, and use an air conditioner," Yang says.

SOURCES: Tsai, S. Stroke: Journal of the American Heart Association, November 2003; vol 34. News release, American Heart Association.

INVISIBLE KILLERS: FINE PARTICLES

Eight studies of air pollution in U.S. cities have now shown that fine particles (the invisible soot emitted by incinerators, automobiles, power plants and heating units) are presently killing about 60,000 Americans each year.¹ More than a dozen studies have, in one way or another, confirmed this relationship. Furthermore, there appears to be no threshold, no level below which effects disappear. This means that people are being killed by air pollution levels well within existing federal standards.

To summarize bluntly, any increase in fine particles in the atmosphere kills someone. The victims remain nameless, but they have been deprived of life all the same. Mere compliance with federal standards does not protect the public. Any increase in the number of small particles in the air elevates the death rate. This has obvious implications for certain technologies: incinerators and fossil-fuel-powered machines (automobiles and trucks, power plants and heating units). To protect public health, these technologies must be avoided, or fitted with expensive control equipment, or replaced by cleaner alternatives.

People have known for a long time that particles in the air can kill. In 1952, a dense smog killed 4000 people during one week in London, and since then no one has doubted the cause-and-effect relationship. The question, therefore, isn't whether airborne particles can harm humans, but rather, how much pollution causes how much damage, and, secondly, is there a threshold, an amount below which no effects are seen?

Throughout the '50s and '60s, complacent authorities assumed there was a threshold -- some amount that was safe. However, after 1975, a revolution took place in scientific understanding of fine particles and health. In 1979, the National Research Council of the National Academy of Sciences,² and the United Nations,³ both published book-length studies of the dangers of small particles to humans. Here is the current view: humans evolved in an environment where dust was made up of large particles. Humans therefore evolved means for protecting themselves against large particles. Large particles are filtered out by hairs inside the nose, mucous membranes in the throat and airways, and other mechanisms. However, modern combustion machines produce small particles which pass right by these natural protections and then enter the deep lung. In the deep lung, air comes into contact with a person's blood stream; this is where oxygen passes into the body and carbon dioxide passes out with each breath we take. Putting tiny particles of pollution directly in contact with the surface of the deep lung is a recipe for trouble. Because of their origin in combustion processes, most fine particles are coated with toxic materials -- metals like lead and mercury, or toxic organics like polycyclic aromatic

hydrocarbons (PAHs). So fine particles provide a uniquely efficient carrier, giving dangerous toxins direct entry into the blood stream.

Armed with new knowledge, in 1987, U.S. Environmental Protection Agency (EPA) established new, stricter standards for particles in the air. The 1987 standard, which governs today, is expressed in terms of small particles (also called particulate matter) that measure 10 micrometers or less in diameter. (A meter is 39 inches and a micrometer is a millionth of a meter.) These are called respirable or inhalable particles because, as we saw above, they are small enough to get into the deep lung where they cause various kinds of damage. The shorthand way to refer to these pollutants is PM_{10} (meaning Particulate Matter 10 micrometers or less in diameter). Current U.S. standards say that the ambient air (the general air we all breathe) may contain no more than 50 micrograms (μg) of PM_{10} particles per cubic meter (m^3) of air as an annual average, and the one-day average should exceed 150 micrograms per cubic meter ($\mu g/m^3$) only one day each year. (A gram is 1/28th of an ounce and a microgram is a millionth of a gram.)

Since 1987, evidence has been accumulating, showing that the 1987 standards do not protect human health. The question about the existence of a PM_{10} threshold was addressed first by Joel Schwartz of U.S. Environmental Protection Agency (EPA). Schwartz reviewed data on air pollution and deaths from London, 1958-1972, and showed there was no threshold down to the lowest observed levels of air pollution.⁴ A study published last month in the *New England Journal of Medicine*, of six U.S. cities, including several that are not heavily polluted, such as Portage, Wisconsin and Topeka, Kansas, shows death rates increasing with just 15 $\mu g/m^3$ of PM_{10} pollutants.⁵ In all, at least 8 studies have now shown that PM_{10} at any level kills people. It seems clear there is no threshold.

A study of people in Steubenville, Ohio, showed that each increase of 100 $\mu g/m^3$ of total suspended particles (of which PM_{10} represents about half) is associated with a 4% increase in the death rate, with no threshold.⁶ Interestingly, the Steubenville study showed that the death rate changes as fine particle levels change, but not as sulphur dioxide levels change.

In Philadelphia, a close relationship between PM_{10} pollutants and the death rate was observed.⁷ Once again sulfur dioxide levels did not correlate with the death rate, but particle concentrations did. Here each increase of 100 $\mu g/m^3$ of total suspended particles (of which PM_{10} makes up half) was associated with a 7% increase in the death rate. There was no threshold.

A study of people in Detroit showed that a 6% increase in the death rate was associated with each increase of 100 $\mu g/m^3$ of total suspended particles (of which PM_{10} makes up half).⁸ There was no evidence of a threshold. Sulfur dioxide levels were not signifi-

Smallest aerosol pollutants linked to disease

In August 1986, labor disputes shut down the Geneva steel plant west of Orem, Utah. Thirteen months later, the mill resumed operations under a new owner. It also resumed belching huge quantities of particulates — dust-sized aerosol pollutants—from its coking ovens and open-hearth furnaces. Almost at once, people living nearby began commenting on a decline in air quality—and in the health of their children.

Now, a researcher at Brigham Young University in Provo, Utah, has confirmed that respiratory health among area residents improved during the plant's shut-down. And for the first time, his study links a region's increased levels of the smallest particulates — 10 microns and smaller — with increased rates of children's hospitalization for bronchitis, asthma, pneumonia and pleurisy.

The Environmental Protection Agency made aerosols 10 microns and smaller (PM_{10}) its new gauge of hazardous air particulates in July 1987. Previously, the agency measured and set limits only on "total suspended particulates"—the total dust wafting in air.

The State of Utah, however, had begun continuous PM_{10} monitoring in the Orem area two years earlier. So by mid-1988, Brigham Young environmental economist C. Arden Pope III had roughly three years' worth of data to analyze, including more than a year's data preceding Geneva's shut-down. That's important, he notes in the May *AMERICAN JOURNAL OF PUBLIC HEALTH*, because the steel mill emits approximately 82 percent of the area's industrial PM_{10} emissions when it's operating. Even after accounting for other, largely seasonal sources, such as household wood stoves, Pope found that Geneva's emissions represent 47 to 80 percent of the area's PM_{10} total.

His analysis shows that PM_{10} levels in the area climb in the fall and peak in the winter. While mean PM_{10} concentrations in the fall of 1985 were 35 micrograms per cubic meter ($\mu g/m^3$) of air — just 13 percent higher than a year later, when the steel mill was shut down — fall hospitalizations for Utah County children with bronchitis and asthma were more than twice as high in 1985 as they were in the fall of 1986. In fall 1987, after the plant reopened, hospitalization of children with bronchitis and asthma exceeded even the 1985 level. Adult hospitalizations for these diseases showed no similar increase that fall.

In the winter of 1985-86, mean PM_{10} levels were $90 \mu g/m^3$ — 75 percent higher than the next winter's mean. Hospitalizations of children with bronchitis and asthma in the 1985-86 winter season were more than three times as numerous and admissions for pneumonia and pleurisy almost 2.5 times as numerous as in the

following winter, when the mill was closed. Winter increases also showed up in adult hospitalizations for bronchitis and asthma. Pope says PM_{10} levels can explain 30 percent of the variability between years in the adult hospitalizations.

Pope acknowledges that in a study like this — identifying correlations only — "there's no way to establish absolute cause and effect." However, he told *SCIENCE NEWS*, "this study does find some very damning correlations."

Pope's analysis is "a landmark study," says Douglas W. Dockery of the Harvard School of Public Health in Boston. In epidemiology, he explains, "you look for unique situations where there is a natural experiment going on." Geneva's shut-down provided such an experiment, he says, enabling Pope to identify a strong relationship between small particulates and respiratory disease.

Dockery recently found a similar association in his study of 5,422 children aged 10 to 12 from six U.S. cities: Portage, Wis.; Watertown, Mass.; Topeka, Kan.; St. Louis, Mo.; Kingston, Tenn.; and Steubenville, Ohio. Of the seven measures of air pollution he analyzed — including total suspended particulates, ozone, nitrogen oxides and sulfur dioxide — only particulates 15 microns and smaller (PM_{15}) served as a strong predictor of respiratory disease.

Dockery's study shows that children living in the "dirtiest" city — steel town Steubenville, with an average annual PM_{15} level of $58.8 \mu g/m^3$ — run more than double the bronchitis risk of children in the "cleanest" city, Portage, with its average annual PM_{15} level of $20.1 \mu g/m^3$. Children with asthma and persistent wheezing represented the majority of the excess bronchitis cases in the more polluted communities, Dockery and his colleagues report in the March *AMERICAN REVIEW OF RESPIRATORY DISEASE*.

The Brigham Young and Harvard studies are the first to focus on the smallest particulates and to confirm what researchers have long suspected — that these aerosols are the most important in terms of respiratory-disease risk. Pope focused on acute effects of exposure, while Dockery's group focused on long-term effects.

Both analyses yield evidence that EPA's current PM_{10} standard is not sufficient to protect children's health. For instance, even though Orem-area PM_{10} levels never exceeded EPA's 24-hour standard of $150 \mu g/m^3$ in fall months, twice as many local children were hospitalized for bronchitis and asthma in years when the plant was operating compared with the year when it wasn't. Similarly, Dockery found "health effects occurring at levels below the current annual average PM_{10} standard" of $50 \mu g/m^3$.

— J. Raloff

EW.S MAY 16 1989

Vol. 135, #18

Science News



THE MERCURY OPINION

Awarded the Pulitzer Prize for spot news photography in 1979 and editorial writing in 1990

A6 / Saturday, February 13, 2010

ANOTHER VIEW

ACE wants to protect your health, pocketbooks

This is about public health, permitted poisons in your family's air, and costs to you for dangerous, unnecessary air pollution. You will pay one way or the other, yet you were denied an opportunity to fully understand the consequences and comment before Southeast Department of Environmental Protection issued a five-year air permit renewal (with increases) to Limerick Nuclear Power Plant.

On Dec. 11, 2008, The Alliance For A Clean Environment presented SE DEP with questions and concerns, intending to share answers with the public, before the permit was issued. DEP failed to answer until December 2009, a year later, after the permit was issued. Requests for a public hearing were denied.

DEP essentially denied the public a voice in a permitting process about Limerick Nuclear Plant's very serious air pollution threats to families in our region and beyond. The financial costs to the public for not preventing air pollution have been shown to be astronomical, yet DEP made permitting decisions that abandon the public's health and financial interests, and instead protect Exelon's profits.

DEP permitted increased PM 10 emissions from Limerick's cooling towers at least six times higher than original permit limits. This is indefensible. Serious health threats from PM 10 are indisputable, including links to heart attacks, strokes, aggravated asthma, increased respiratory disease, decreased lung function, increased emergency room visits and hospitalizations, and death. Limerick Nuclear Plant also emits PM 10 from three boilers, eight generators, and a spray pond. Actual totals are unknown. There is no PM 10 air testing. Exelon estimates PM 10 emissions.

Exelon should be required to reduce PM 10 emissions from Limerick's cooling towers by filtering Schuylkill River water intake for Total Dis-

solved Solids. Montgomery County was already in the top 10 percent of the nation for PM 10 emissions and health impacts, according to EPA data compiled by Scorecard. Permitting any PM 10 increase in this region is negligent.

Issues of major concern related to Limerick Nuclear Plant's Title V Air Pollution Permit Renewal and SE DEP's Comment Response Document include:

1. Radiation, Limerick's most harmful air pollution, illogically omitted from this air permit
2. Calculating/estimating emissions
3. no actual air monitoring or stack testing
4. No filtration on any air pollution source
5. Increased permit limits /changed permit conditions (regardless of increased health threats)
6. Exelon's requests for double increases in exhaust flow volumes
7. Burning contaminated waste oil (waste derived liquid fuel (wldf))

DEP has an opportunity to rectify this injustice by taking action on recommendations and requests from The Alliance For A Clean Environment (ACE) expose on DEP's Comment Response Document for Limerick Nuclear Power Plant's major air pollution permit under the Clean Air Act issued Dec. 7, 2009. For details, contact ACE at 610-326-2387.

ACE contacted PA DEP Secretary Hanger, state Sens. Rafferty, Dinniman, and O'Pake, state Reps. Quigley, Hennessey, and Vereb on Jan. 2, and Congressman Gerlach, to review and support recommendation to protect your health and pocketbook. Exelon should be required to filter Schuylkill River water intake and air pollution sources to reduce dangerous air pollution from Limerick Nuclear Plant's cooling towers and other sources. ACE will keep you informed.

ACE BOARD OF DIRECTORS

**Guest
Columnist**

Nuclear power industry has a poor safety record

In response to Limerick Nuclear Plant employee, Jason Kish's Nov. 21 letter, ACE believes safety is the number one priority of Limerick employees. However, employees can't stop serious health threats to families in our region from Limerick Nuclear Plant's routine and accidental radioactive emissions or Limerick's other harmful air pollution. In addition, accidents happen, even with safety a priority.

Limerick Nuclear Plant's cocktail of radionuclides regularly poisons our air, the Schuylkill River, soil, fish and wildlife, and the region's residents. Long-term exposure logically can cause cancer and other serious health problems when the National Academy of Sciences concludes that there's no safe level of radiation exposure.

Limerick's Title V permit under Clean Air Act health based standards reveals many additional additive air pollution threats from Limerick's greenhouse gases and other air pollutants. It's ludicrous for Kish to suggest that Limerick Nuclear Plant helps our environment "stay green."

Kish inaccurately claims Limerick Nuclear Plant's air emissions are minuscule and closely monitored or tightly controlled by DEP, EPA, and NRC. Neither is true. Call ACE at 610-326-2387 for an appointment to review and discuss Limerick Nuclear Plant's Title V air pollution permit.

1. Limerick Nuclear Plant's extremely toxic mix of air emissions should not be considered minuscule by anyone. Families in our region are continuously exposed to additive, cumulative, and synergistic air pollutants from Limerick's two cooling towers, three boilers, eight generators, eight diesel oil tanks, eight day tanks, degreasing unit, emergency spray pond, and various waste oil sources. Air pollutants include Radiation, PM 10 from massive cooling tower steam and many other sources, NOx, SO2, VOCs, Arsenic, Cadmium, Chromium, Lead, PCBs and Halogens.

2. Limerick Nuclear Plant's emissions are not closely monitored by DEP, EPA or NRC: These

agencies simply review data supplied by Exelon, the company with a vested interest in the outcome. There's little, if any, independent monitoring. The permit shows much of Exelon's data is 'calculated' and 'estimated', not continuously monitored. The permit is riddled with loopholes, including automatic increases.

Kish is correct about radioactive iodine from nuclear plants affecting the thyroid gland, but we can't continuously take KI pills for Limerick's routine radioactive iodine emissions. New research shows thyroid cancers are higher around nuclear plants. ACE is beginning to track people in our region with thyroid cancer, underactive and overactive thyroid problems, or other thyroid conditions. Please report all thyroid information to ACE at 610-326-2387 or aceactivists@comcast.net

The nuclear industry typically claims nuclear plant radiation releases are "perfectly safe," "not significant." This unnecessarily jeopardizes workers and the public, as does delayed notification. Governor Rendell was upset because Exelon waited five hours to notify officials after another accidental radiation release at Three Mile Island on Nov. 21, 2009. Some 150 workers were sent home, yet sent back before the how and why were known. The public wasn't told for days after the 1979 TMI disaster. No one knows how much radiation escaped, where it went, or who it harmed. Cancers, leukemia, stillbirths, malformations, asthma, sterility, skin lesions and other related diseases erupted throughout central Pennsylvania.

Kish says a task force decided people beyond 10 miles from a nuclear plant are not at risk. Absurd! Look what happened after Chernobyl. For Limerick, a 50-mile evacuation zone was first discussed. Kish admits wind direction is a factor in radioactive fallout, yet disregards failure to take this into account in Limerick's evacuation plan.

Protect your family, look at reality, and think for yourself. For more information on the reality of nuclear power: www.radiation.org, www.nirs.org, www.beyondnuclear.org

ACE BOARD OF DIRECTORS

**Guest
Columnist**

PottsMerc.com
OPINION

A8 / Saturday, April 11, 2009



READERS' VIEWS

Nuclear plants are a major source of air, water pollution

In her March 7 response about ACE's Feb. 14 letter, Candace Davison, a nuclear society public relations person, suggests we have little to be concerned about related to Limerick Nuclear Power Plant's air pollution. That statement defies logic and is not supported by the facts.

Ms. Davison's claims are nothing more than her opinion. She defends the nuclear industry regardless of what health research has already proven around nuclear plants. Why would anyone believe her claims about human health when she works for a group that supports the nuclear industry?

Nuclear power is unquestionably unsafe for human health and the environment. No contaminants are as toxic as radioactive chemicals emitted by nuclear reactors. Reputable sources and government data including the BEIR VII Report, or National Academy of Sciences Blue Ribbon Panel, cite that there is *no safe dose of radiation*.

Radiation, combined with many other air pollutants emitted from Limerick Nuclear Plant, make this toxic mix very dangerous. The region's families are forced to breathe these synergistic toxics 365 days a year. CDC data proves much higher than normal cancer rates (especially in children) in the Greater Pottstown region. State data shows that infant and neonatal mortality are far higher than the state average and even higher than Philadelphia or Reading.

Limerick Nuclear Power Plant is a major air pollution source according to Title V permitting under the Clean Air Act. This is an uncomfortable fact for an industry trying to claim it is a clean energy source.

Ms. Davison, nor anyone else, can accurately determine the full extent of Limerick Nuclear Plant's total harmful air pollution impacts, especially to fetuses, children, the elderly, or cancer victims and others already with environmentally related diseases and disabilities. Each toxic pollutant is not continuously or accurately measured out the stacks by anyone. Exelon, the company with a vest-

ed interest in the outcome, controls all data and reporting, relying largely on calculations.

In addition to routine and accidental radiation releases, Limerick Nuclear Power Plant emits:

1. A broad range of toxics with 35 to 42 million gallons of steam every day
2. NOx, PM10, SO2, and CO from 3 boilers and other sources.
3. Arsenic, Cadmium, Chromium, Lead, PCBs, and Halogens from a boiler.

Many reject nuclear industry spin inaccurately suggesting fossil fuels are the only real competitor to nuclear power. Department of Energy facts suggest otherwise. DOE says solar and wind power alone can supply far more than our entire nation's current and future energy needs.

Solar and wind power will be far cheaper for taxpayers, far safer for the environment and public health, and get us off foreign oil far faster than nuclear power. Solar and wind won't threaten the water supply or produce enormous amounts of deadly radioactive poisons, creating defacto high-level radioactive waste dumps in back yards where energy is produced. Limerick Nuclear Plant did that to us.

The least Limerick Nuclear Plant can do to attempt to be a good environmental neighbor is to install the best air filtration equipment on all sources for all toxics and the most protective filtration for the contaminated mine waters added to the Schuylkill River for Limerick's operations. Exelon's extraordinary profits suggest this can be done without raising rates.

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A6 / Saturday, February 14, 2009



ANOTHER VIEW

Nuclear plant is a major source of air pollution

Limerick Nuclear Power Plant emits so much dangerous air pollution (in addition to radiation) that it's considered a major air pollution source under the Clean Air Act. So much for advertisements claiming nuclear power is safe, clean energy. Not only is nuclear power a threat to water quality and quantity, Limerick Nuclear Power Plant's Title V permit shows it's a major air polluter.

November 14, 2008 there was a notice in the Mercury for a Limerick Nuclear Plant Title V permit renewal. This permit requires major air pollution sources to list all their air pollution sources. Since that time we received and reviewed the permit. We were shocked at not only what was in the permit, but also what was incredibly left out of the permit.

**Guest
Columnist**

The loopholes are unprotective and unacceptable. Almost anything goes.

- Radiation, the signature toxic at a nuclear plant, was excluded even though radiation emissions are regulated by EPA and reported by Exelon to NRC.

- No air pollution control equipment is required on any of the many sources.

- Reported emissions are based on illusion, not reality. Annual reports are largely based on Exelon's own "calculations" and "estimates", not on actual emissions testing. There is no independent testing.

- Exelon can increase dangerous air pollution from the nuclear plant without going through any kind of review or approval process.

- There are all kinds of exemptions.

- Preapproved permit revisions are allowed under economic incentives.

Limerick Nuclear Power Plant air pollution includes a broad range of radionuclides and toxics from cooling towers, combustion chemicals, waste fuel, and others.

Pollutants Include: Radiation, NOx, VOCs, PM10, SO2, Arsenic, Cadmium, Chromium,

Lead, PCBs, Halogens

Sources Include:

- 2 Cooling towers
- 3 Boilers
- 8 Generators
- 8 Diesel Oil Tanks
- 8 Day Tanks
- Degreasing Unit
- Emergency Spray Pond
- Various Waste Oil Sources

Limerick Nuclear Plant's additive, cumulative, and synergistic harmful health impacts are unknown, but clearly significant. Most impacted are children, the elderly, and those already sick. Examples of Synergism:

- NOx + SO2 = acid rain which can jeopardize water, soil and food. When NOx and SO2 meet with steam (35 to 42 million gallons per day emitted from Limerick towers), sulfuric and nitric acids can be formed in the air causing major respiratory damage and other health harms when inhaled. Limerick's permit allows automatic (TONS per year) increases in both.

- NOx + VOCs with sunlight increases ozone, which kills thousands of people each year and sends many more for hospital emergency room visits.

- Ozone works synergistically with radiation to enhance the cancer causing effects of radiation.

Families are impacted throughout our region. Learn more - watch PCTV Channel 28, Tuesdays, 7 to 8 p.m. Of major concern: Exelon's requests for increased exhaust flow volumes from many sources — some more than doubled. Exelon added a new source and is burning waste in a boiler.

Minimally, ACE believes Exelon should be required to install the most protective pollution control equipment for all Limerick's air pollution sources. If you agree, contact ACE — 610-326-2387 or 610-326-6433. Leave your name, phone, and/or e-mail address to be updated and notified if DEP holds a public hearing.

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