STREAM OF CONSCIOUSNESS

A NEWSLETTER OF THE ALLIANCE FOR ACID RAIN MONITORING (ALLARM)

Edited by Colleen Thompson *December 1992*

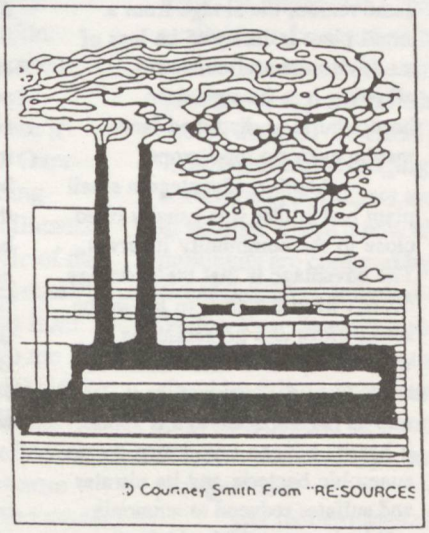
"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has."

--Margaret Mead

The Clean Air Act Made Simple

by Jennifer Sloan

Air pollution affects everyone. Not only can breathing the air lead to adverse health effects, but air pollution also affects our economy. Land and property in heavily polluted areas can decrease in value while crops, vegetation, and livestock may also be destroyed. The decay of rubber, nylon, iron, and paint are also results of air pollution. Air pollution also leads to acid precipitation, which has deadly effects of its own. These factors have contributed to the government's effort toward clean air legislation. On November 15, 1990, Congress enacted the Clean Air Amendments. The goal of this legislation is to curb acid rain, urban air pollution, and toxic air emissions. The legislation is broken up into five titles.



Title I is listed as "Provisions for Attainment and Maintenance of National Ambient Air Quality Standards." Under this title, counties that do not meet governmental standards are labeled, "non-attainment." They are then ranked as marginal, moderate, serious, severe, or extreme. These counties must take emission reduction measures in relation to the severity of their pollution problem. This title also requires each state to develop "comprehensive transportation planning" in order to lessen society's dependence on automobiles. The legislators hope to encourage the use of car pools and mass transportation.

Title II, "Provisions Relating to Mobile Sources," initiates new, rigid emission standards for both cars and trucks. In order to ensure that both pass emission testing, Title II also requires that states develop better vehicle inspection and maintenance programs.

Title III, "Hazardous Air Pollutants," requires that EPA set standards for 189 toxics that significantly threaten public health.

"Acid Deposition Control," Title IV, focuses on electric utilities and large combustion units. This title requires such facilities to reduce SO_2 and NO_x emissions. These emissions are known to be major components of acid rain. However, any unit having SO_2 emissions falling below the federal standards is given privileges allowing them to sell or trade their reduction as an "allowance" to another utility. Examples of compliance are installing SO_2 scrubbers, switching to low sulfur coal, or installing NO_x technology. For selected power plants, the first major reductions must occur by 1995. Reductions to all plants must be made by 2000. In Pennsylvania, the following facilities must achieve their reductions by 1995: Armstrong, Brunner Island, Cheswick, Conemaugh, Hatfield's Ferry, Martin's Creek, Portland, Shawville, and Sunbury.

Title V examines permits. More specifically, it examines state enforcement of "air quality measures." Although all air pollution sources will be monitored and issued a state permit, this title may have a drastic effect on small businesses. Many of these small businesses will be obtaining permits for the first time. Federal law requires state establishment of compliance and technical assistance programs; this will ease the load of some 41,000 small businesses in Pennsylvania which will benefit from the aid.

The first step in helping the environment is becoming informed. Now that these acts have been made somewhat easier to understand, strive to go beyond self-education. For example, try to drive less--this can be accomplished by walking more, riding a bike, organizing carpools, or using public transportation. It is important that everyone makes an effort, because everyone breathes our air.

MONITOR CONTRIBUTION: SEWAGE TREATMENT PLANTS OF THE 90'S

by Andrew Saul

Sewer plants, now more commonly waste water treatment plants, and their plant personnel are generally not very highly regarded in the community. Older folks may remember when the odors from the plant were a continual nuisance and when, especially in the summer, there would be fish kills below the sewer plant discharge. Also the town fathers used the sewer plant work for men who were pretty useless otherwise or were the town drunks.

In the past 20 years, however, a certain professionalism has crept into our ranks. The first Earth Day, back in 1970, made all of us more conscious of the air, land, and water around us and therefore helped to give sewer plant operators a higher status in the community. Also in that year the Clean Water Act was passed. Besides the much stricter effluent standards imposed through the National Pollution Discharge Elimination System (NPDES) for treatment plants, it authorized the upgrading of thousands of our larger treatment plants with billions of Federal, State, and local dollars. A great deal of labor saving and pollution-preventing equipment was installed through this Federal law. Many small plants closed and in their place were bigger regional plants which covered acres of ground with large rectangular and circular tanks, lots of pumps and air blowers and often miles of piping. To run such plants, it took people with more than the knack for using a Stilson wrench; at least some personnel had to be able to use and input data into a computer.

I know something about small plants, having worked at several for about fifteen years. There are some advantages of small facilities.

First a personal preference of mine. If you like being your own boss, small plant operations may be for you. Most jobs--while often physically taxing--can be done by one person. Sedimentation tanks have to be skimmed every day, sometimes several times a day, to remove floatables--cigarette butts, plastic articles, garbage grindings and kitchen grease. More mechanized plants have equipment that does such things automatically.

A small plant, however, often has the advantage that its sewage is only residential. In that case that operator is likely to have fewer operational problems (larger, city wide plants often have industrial wastes that may contain poisons that destroy the bacteria and other critters that keep a plant running smoothly). Also, for the same reason, the sludge from a small plant is likely to be less of an environmental concern--allowing it to be spread on horticultural or disturbed land--maybe even on food crops.

Another advantage a small plant had is that it is usually cited close to the community it serves. The advantage is that the sewerage doesn't have the time to lay in the sewer pipes and go septic--as it will if the plant is more than a few miles from the community it serves. When sewerage is septic, it has its oxygen withdrawn by anaerobic bacteria and its nitrates and sulfates reduced to ammonia and hydrogen sulfide--both of which are hard and expensive to remove at the plant.

Another advantage is that most small plants use little electricity. They may use only 5-25% of the electricity per gallon of sewerage treated that a larger facility uses. For example, many small plants dry sludge on sand beds where the sun and the filtering action of sand work together to dry the sludge. There may be no energy costs with this operation; on the other hand, bigger plants rely on vacuum filters, belt presses, and, horror of horrors, an incinerator to try to burn the water off.

A final advantage for small plants is an environmental one. Water treatment plants always remove water for distribution to homes and commerce upstream of the community's sewage treatment plant. If the water is not replenished to the stream, it may go dry in drought years. Sewer plants help to recharge the stream and water table higher up in the stream than do regional plants. Today with the sunken stream beds that I (and I am sure many of us) see as I take my stream samples, I think this concern over recharging the ground water is important.

Sewer plants, the sanitary engineering manuals point out, perform in a space of an acre or two what a stream can do for itself in seven miles. It does this in part by concentrating the "bugs," as the operators call them-- the bacteria, algae, fungus and larger critters like small roundworms and filter flies that eat sewerage as their diet, thereby reducing its BOD (biological oxygen demand) , NH3 (ammonia) and suspended solids load on the stream.

I hope this report makes a sewer plant, especially the small one, more understandable and appreciated. If you have ever seen a severe algal bloom or fish kill, you know that treatment plants usually perform a useful service.

Editor's note: Andrew Saul is monitoring four streams in Delaware County. He has been with ALLARM since February of 1990. He is affiliated with the Delaware County Citizens for a Clean Environment.

HOW DOES THE WEATHER AFFECT ACID DEPOSITION?

by Cristin Tighe

Acid deposition is one of the most critical problems affecting our environment and our world today. Up to this point there have been no direct connections between sources and deposition in any one region. Yet, it is known that the atmosphere acts as a conduit between emissions and the acid deposition that follows. Therefore, the effects of the atmosphere and weather on acid deposition are very significant.

What is the role of the atmosphere and weather in the production of acid deposition? Most obviously, the atmosphere is the place where the pollutants travel from their source to the site where they are deposited. Also, the atmosphere is the medium in which pollutants are chemically transformed into acidic substances. Plus, the conversion of chemicals to acids could not take place without the moisture in the atmosphere. Therefore, the amount of emission sources that will contribute to deposition depends on the meteorology of the certain areas in which the emissions occur. Generally, as these examples show, the meteorological aspects of acid deposition can be considered under three main categories: transportation, transformation, and deposition.

The transportation of emissions varies depending on wind direction and wind speed. Wind direction is an important factor because it controls where the pollutants will end up. Over the United States, for example, the prevailing atmospheric flow to the east will carry pollutants from the strong source regions in the middle of the country to sensitive source area on the east coast. On a relatively smaller scale, the pollutants from industrial plants such as steel mills in Ohio are blown into Pennsylvania, making Pennsylvania the state receiving the most acid deposition. Wind speed is important because it has a major effect on the concentration of the air pollutants that cause acid deposition. As the speed of the wind increases, the pollutants are emitted into a volume of air that is greater, so their concentrations are lower. Lower concentration rates mean lower chemical reaction rates, and therefore a slower rate of acid deposition.

Transformation, the second meteorological aspect of acid deposition, occurs through dilution or through chemical reaction. Horizontal air flow, such as atmospheric turbulence, or rapid fluctuations of the local wind, cause the pollutants to mix with the surrounding air. As the pollutants and the surrounding air mix, the boundaries of the pollutant expand; this eventually leads to dilution. Vertically, increased wind speed causes increased vertical mixing. Also, changes in surface temperature, due to the changing of cloud cover and the intensity of solar radiation, change the density of the air causing enhanced vertical mixing. Up and down movement of the air dilutes the pollutants that lead to acid deposition. As well as physical transformation through dilution, chemical transformation of pollutants happens in the atmosphere. For example, the oxidation of sulfur dioxide and nitrous oxides to sulfuric and nitric acids occurs in the atmosphere. Much uncertainty exists as to the importance of various potential oxidants, but it is known that concentrations of necessary oxidants depend on the intensity of solar radiation. So, latitude and season of the year are important in determining the presence of these photochemically produced chemicals which are needed for oxidation.

Deposition, the third meteorological aspect of acid deposition is more obvious than the other two aspects. The atmosphere has two similar functions: it passes the pollutants from medium to medium where other whole chains of events may take place, and it acts as a feedback mechanism to itself--as material is deposited it is no longer available to be acted on by the atmosphere. These cyclic functions of the atmosphere are exemplified during wet deposition when removal of pollutants occurs through "in-cloud scavenging" (rain out) and "below-cloud scavenging" (wash out). In in-cloud scavenging, pollutants are passed from one medium to another where a new chain of events takes place--pollutants are captured by and transformed within cloud droplets. In below-cloud scavenging, the feedback mechanism is revealed as falling precipitation intercepts the pollutants beneath the cloud by falling precipitation. These processes, therefore, depend on humidity, size of cloud droplets, and size type, and distribution of falling precipitation.

The meteorological aspects of acid deposition are significant in understanding, controlling, and hopefully in eventually limiting acid deposition. The role of the atmosphere in transporting, transforming, and depositing acid deserves serious consideration. Different aspects of meteorology all affect how much acid deposition will occur and where it will be deposited. Through the study of meteorology we can learn more about one of the most critical environmental problems affecting our world today--acid deposition.

VOLUNTEER SPOTLIGHT: RON COMSTOCK

by Matt Franke

As you all know, ALLARM's strength rests with the commitment and motivation of its volunteers. The staff at ALLARM have chosen to highlight the achievements of Ron Comstock because he has provided consistent and accurate data for over 15 sites in Tioga and Potter counties for the past two years.

Ron began monitoring and sending data to us in October, 1990. His involvement with ALLARM was linked to his involvement in the Pine Creek Headwaters Protection Group, whose newsletter was sent to active volunteers in early November. When asked about his principle motivation in a recent phone interview, Ron replied that he felt that monitoring is important, especially given the high quality of the streams in his area. Two such streams, Woodruff Run and Steele Run, flow past his cottage and were among the first sites that Ron began to monitor. In addition, Ron added that he is a trout fisherman who enjoys the outdoors and scouting for potential fishing holes!

I'm sure you are all wondering (I know I was at first), "How does this man manage *all* of those sites?" With a chuckle, Ron explained that he is a TV service technician, and spends a lot of time driving a regular route past his sites throughout the week. In addition, Ron makes his rounds with fellow ALLARM volunteer and PCHPG member Phil Stillerman. Together, the two of them have established a routine for monitoring the pH and alkalinity. Ron later added that, after a year of collecting the water samples for testing at home, he found that on-site testing was easier and less time consuming.

When asked where he hoped ALLARM would be in the next five or ten years, Ron replied that he was most excited about the new equipment that will become available at Dickinson in the near future. Dickinson College has recently received a grant for machinery that will allow for the analysis of heavy metals and organic compounds in water. Right now, the ALLARM staff is becoming quite frustrated that it is taking so long to get the machines in place and functional. We *had* been hoping to launch a pilot project this Spring...

"It's time well spent", said Ron as we were finishing up the interview. "The beauty of my sites really makes it fun!", he said, explaining why he didn't mind monitoring specific sites on the weekends if he didn't manage to fit them into the work week.

Ron brought up a final point--that he recognizes the importance of gathering baseline data about the streams in his area. These data are essential for future comparative studies on the impacts of specific laws, such as the new Clean Air Act, and threats, like the landfill proposed in his area by Antrim Mining and Phoenix Resources.

Please do not hesitate to write or call us at the office if you have ideas or suggestions for ALLARM's future, or for future **Volunteer Spotlight** articles. Obviously, we'd like to highlight all of your efforts: you all deserve our praise! After all, you are the only ones in Pennsylvania who monitor your sites regularly. Together we have built the most extensive stream health database in the Commonwealth--keep up the good work!

ATTENTION!

Recently, ALLARM decided to launch a Regional Coordinators program, and we need your help. Becoming a regional coordinator would require attending a training workshop at Pine Grove Furnace State Park on March 13 and 14, and maintaining contact with 6-10 monitors through letters, phone calls, or short meetings. We are in need of coordinators from the following counties: Erie, Warren, McKean, Venango, Jefferson, Lawrence, Butler, Allegheny, Cambria, Somerset, Fayette, Bradford, Sullivan, Columbia, Northumberland, Potter, Tioga, Cameron, Clinton, Clearfield, Luzerne, Wyoming, Lebanon, Lancaster, Franklin, Fulton, Bedford, Cumberland, Juniata, Blair, and Huntingdon. If you are interested or have any questions, please get in touch with Jennifer Sloan at the ALLARM office.

CARMEN'S CORNER
by Carmen Irizarry

Energy Efficiency

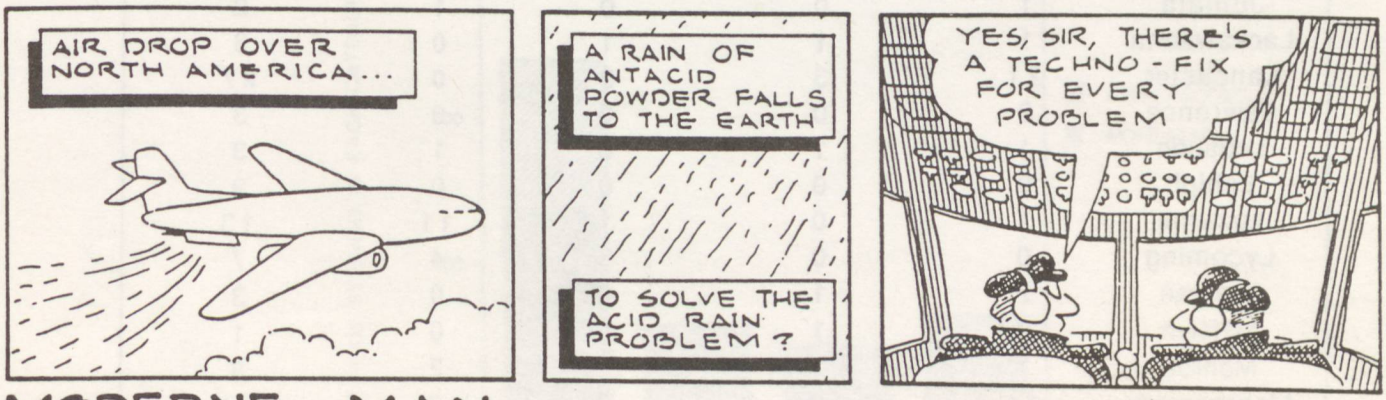
Until recently, it has been assumed that to achieve auto fuel efficiency, that is, to lessen fuel expenditure per mile traveled, consumers would have to buy smaller cars. The concern of both the auto industry and the consumers is that in giving up size, a driver also forfeits safety. Now it has been discovered that a larger car can be just as fuel-efficient as a smaller, more compact car, provided that the weight of cars remains the same. About 13% of the fuel efficiency improvements made since 1974 are due to weight reductions, improvement of tires, engines, and transmissions, along with a commitment to more aerodynamic designs. More fuel efficiency advances could be achieved if the following are installed in the automobiles: intake valve controls, continuous variable transmissions, and two-stroke and lean-burn engines.

Technology

The Hyatt Hotel, a county jail, several hospitals, and clinics in California are investing in a manufactured fuel cell that produces thousands of watts of electricity and heat without creating smog or by-product chemicals. This fuel cell has been the source of electricity in space. Why has it not been used on Earth? Its restrictive cost has been the main deterrent; however, strict environmental regulations have made these fuel cells marketable because their cost is comparable to the cost of expensive mandatory anti-pollution equipment.

These fuel cells produce electricity through electrolysis. In this chemical process hydrogen, the positive electrode, bonds with oxygen, the negative electrode; these are immersed in an electrolyte. Electrolytes that may be used include phosphoric acid, various solid compounds, and membranes. The by-products are water and the electrical flow. Hundreds of such cells packed in a cabinet 24 feet long, 10 feet wide, and 10 feet high can light 150 homes 24 hours a day as long as they are supplied with hydrogen.

The cost must still decrease somewhat to raise the economic acceptability of the cells, but hopes are high. Several companies have started to figure out ways to lower the cost. Natural gas companies are the largest advocator for the fuel cell because they will be the major suppliers of the hydrogen needed for the chemical reaction if the cells come into widespread use. U.S. energy companies interested in the technology include United Technology Corporation, Westinghouse Electric Corporation, and Energy Research Corporation at Danbury, Connecticut.



CLASSIFICATION OF STREAMS MONITORED BY ALLARM VOLUNTEERS (1987-1992)

COUNTY	Resistant	Slightly Resistant	Vulnerable	Endangered	Total # Streams
Adams	11	2	5	0	18
Allegheny	7	0	0	0	7
Armstrong	4	0	0	1	5
Beaver	1	0	0	0	1
Bedford	6	0	0	0	6
Berks	14	0	0	0	14
Blair	1	5	2	0	8
Bradford	2	0	0	1	3
Bucks	10	0	0	1	11
Butler	1	0	0	0	1
Cambria	2	1	0	1	4
Cameron	0	1	2	0	3
Carbon	1	2	2	7	12
Centre	14	3	0	3	20
Chester	5	1	0	0	6
Clearfield	1	0	1	1	3
Clinton	2	0	1	0	3
Columbia	1	0	0	1	2
Cumberland	12	3	0	4	19
Dauphin	14	4	3	6	27
Delaware	9	1	0	0	10
Elk	0	0	1	1	2
Erie	2	0	0	0	2
Fayette	0	3	0	0	3
Franklin	10	2	4	4	20
Fulton	4	0	1	0	5
Huntingdon	6	0	3	4	13
Jefferson	0	4	0	0	4
Juniata	1	0	0	1	2
Lackawanna	1	1	1	0	3
Lancaster	21	3	3	0	27
Lawrence	3	0	0	0	3
Lebanon	1	1	0	1	3
Lehigh	9	0	0	0	9
Luzerne	1	0	1	11	13
Lycoming	0	0	3	4	7
McKean	2	1	0	0	3
Mifflin	0	1	0	0	1
Monroe	1	1	1	3	6
Montgomery	11	0	0	0	11
Northampton	5	1	0	0	6
Northumberland	3	1	0	1	5
Perry	6	0	1	2	9
Philadelphia	2	0	0	0	2
Potter	6	3	0	0	9

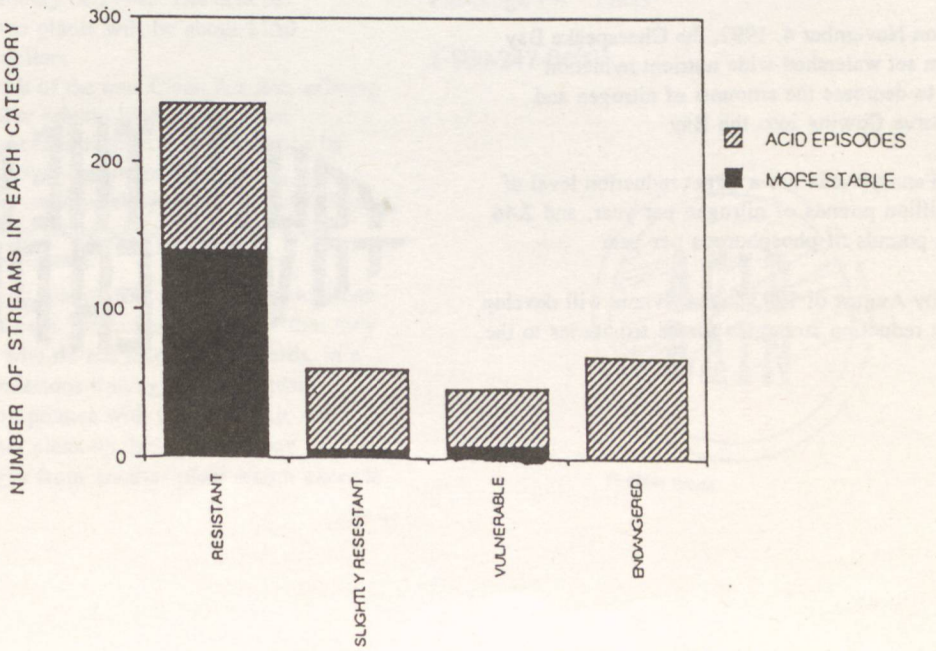
County	Resistant	Slightly Resistant	Vulnerable	Endangered	Total # Streams
Schulykill	1	4	7	1	13
Snyder	1	0	0	0	1
Somerset	0	2	0	1	3
Sullivan	0	0	0	1	1
Susquehanna	2	1	0	0	3
Tioga	1	0	0	1	2
Union	1	0	0	1	2
Venango	1	1	0	0	2
Warren	1	0	3	2	6
Washington	5	0	0	0	5
Wayne	0	3	0	0	3
Westmoreland	1	0	0	1	2
Wyoming	1	1	0	1	3
York	12	3	1	1	17
TOTALS	240	60	46	68	414
PERCENTAGES	58	14	11	16	100

Stream Ranking Explanation

Once we receive enough data from you, our monitors, ALLARM staff members can classify your stream on its ability to neutralize acid inputs (acid precipitation). Our classification system is based on the average alkalinity data you collect. The categories we use are:

CATEGORY	AVERAGE ALKALINITY
RESISTANT	>20 ppm
SLIGHTLY RESISTANT	10-20 ppm
VULNERABLE	5-10 ppm
ENDANGERED	<5 ppm

The above list shows the streams monitored in each county, and indicates which classification range the streams fall within. Notice on the graph below that even a stream which is RESISTANT can still have acidic episodes.



DID YOU KNOW?
by Cristin Tighe

The Chesapeake Bay is a valuable resource full of fish, shellfish, and other aquatic life. At this point, human impact has destroyed a substantial part of the resources in the bay. In support and celebration of the Chesapeake Bay Program's restoration effort, *Stream of Consciousness* hopes to educate you on the Bay and what you can do to lessen your impact on it.

Did you know....

• that non-point sources of pollution like agricultural runoff, urban stormwater flows, and increased erosion due to poor management of construction sites are currently the leading cause of the degradation of the Chesapeake Bay

• that the Susquehanna River is one of the major tributaries of the Chesapeake Bay and that your actions in Pennsylvania affect what occurs in the Bay

• that the Chesapeake Bay is the nation's largest estuary; it can support both fresh and marine life forms

• that the main problem in the Chesapeake Bay is excess nutrients that cause explosive growth of phytoplankton which die and sink to the bottom, where they are then decomposed by bacteria which use up most or all of the water's dissolved oxygen

• that you can help to lessen your impact on the Bay by conserving water, using low or non-phosphate cleaners, limiting lawn fertilizer use, and properly disposing of all lawn, garden, and household wastes

• that on November 4, 1992, the Chesapeake Bay Program set watershed-wide nutrient reduction targets to decrease the amounts of nitrogen and phosphorus flowing into the Bay

• that Pennsylvania has a target reduction level of 19.8 million pounds of nitrogen per year, and 2.46 million pounds of phosphorous per year

• that by August of 1993 Pennsylvania will develop nutrient reduction strategies for its tributaries to the Bay

MATT'S HELPFUL HINTS
by Matt Franke

• If your Reagent #1 begins to turn a rusty color, please return your bottle to our office--the color indicates that the chemical has gotten old. We'll refill your bottle at no cost.

• The alkalinity for water samples that titrate (turn pink) with one drop of Reagent #2 is zero ppm. For the 25 ml test size, then:

(number of drops - 1)x2=alkalinity

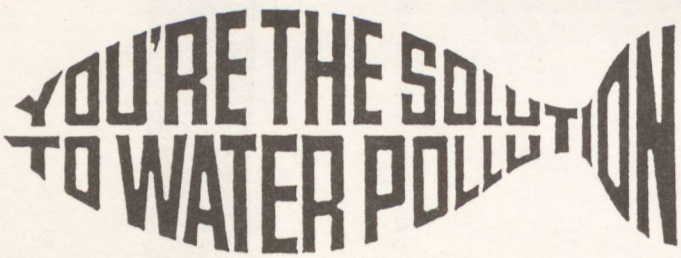
which is to say:

(1-1)x2=alkalinity, or 0x2=0ppm

• Some monitors find it helpful to put a sheet of white paper behind their samples. This technique makes it easier to see color variations.

• It is important to remember that a "flash" of pink is not the endpoint. Be sure to *swirl* your sample when you add the reagents. If you swirl them, then the "flashes" won't last so long, and it's less confusing. The endpoint has been reached only when the swirled solution remains some shade of pink or red for 30 seconds or more.

• Please use the 25 ml sample size only if your alkalinity is 25 ppm or less. This test is more accurate, but can waste a *lot* of Reagent #2 if the alkalinity is 150 ppm!



DUQUESNE: LIGHTING THE WAY TO INTERSTATE POWER?

by Jennifer Sloan

Being a member of ALLARM and taking on the responsibility of monitoring sites on a weekly basis illustrates a commitment toward the reduction of acid deposition. In fighting this battle, many monitors have learned of the effects coal power plants have on the environment, particularly increasing stream acidification. Locally, Duquesne Light has introduced a dilemma requiring a decision to be made between economic development and environmental preservation.

The Duquesne Light Company supplies electricity to Pennsylvania citizens living in Allegheny and Beaver Counties; the General Public Utilities Corporation (GPU) supplies electricity to nearly two million customers in central and eastern Pennsylvania and New Jersey areas. Recently, the Duquesne Light Company and GPU announced a power sales agreement that includes the supplement of electricity to the New Jersey area. Bringing the affected power stations on line will generate a large supply of revenue and jobs, a 250-mile power line to run through Pennsylvania, and an increase in acid deposition-causing pollution.

The prospect of a 250-mile power line through Pennsylvania has received much recent publicity and many citizens are expressing their concerns. Less publicity has surrounded the issue of increased air pollution associated with Duquesne's plan.

Two power plants will be brought on line. The first of these is the Brunot Island Power Station which will be burning natural gas or oil. The second plant, the Frank R. Phillips Station, will be burning coal. The plants were taken off-line in 1987 because of "a reduction in demand for electricity that accompanied the decline of the steel industry in the Pittsburgh area." Both stations are scheduled to come back on-line in January of 1994. The cost of reactivating the two plants will be about $150 million, in 1996 dollars.

As a result of the new Clean Air Act, existing coal fired plants that release high levels of air pollutants are required to reduce these emissions by installing clean coal technologies, scrubbers, or closing down. Environmental upgrades to a coal-fired plant usually include reduction in three main areas; SO_2, NO_x and particulates.

In addition, plants that exceed the new Clean Air Act standards earn "pollution privileges" that they can sell to plants who do not meet the standards, in a scheme called "emissions trading." Thus a plant which is not in compliance with the Clean Air Act standards can either clean up their plant or buy pollution priveleges from another plant which exceeds the standards.

Duquesne's Phillips plant will exceed the Clean Air Act standards. Therefore, by bringing the plant back on line, Duquesne could apply these pollution privileges to their Cheswick plant which will not be in compliance with the Clean Air Act, and which will otherwise need to reduce its emissions to meet the new Clean Air Act regulations. The Cheswick plant will thus be <u>legally</u> polluting at rates exceeding the limits set by the Clean Air Act. This allowance for increased emissions will most likely harm the community around the plant and those communities downwind of the plant.

Although the reactivation of the Phillips plant may bring many jobs to the area and give all of Duquesne's customers a rate cut, the price is a net increase in air pollution. As a result, citizen groups such as Citizens Opposed to Unsafe Power (COUP) are avidly protesting the plant's re-opening.

Duquesne has two options. They can either use the pollution privileges they received to continue polluting at the Cheswick plant, or they can choose to reallocate some of the profits to be made from the Phillips plant toward the upgrade of the Cheswick plant. By doing the latter, Dusquesne would do their part in sustaining the environment, while still supplying jobs and economic development within the community.

As monitors, the threat of yet another coal fired plant is quite alarming. If you are concerned about this threat to our environment please get in touch with a local action group, such as COUP, or write to the Duquesne Light Public Information Department in Pittsburgh, Pennsylvania.

Duquesne Light Public Information Department
1 Oxford Center
301 Grant Street
Pittsburgh PA 15279

1-800-247-0400

Four, Five and Six Year Monitoring Honor Roll

compiled by Matthew Kloiber

Six Year Monitor

Name	Stream	County
•Broadbent	Brock Creek	Bucks
	Lehigh	
	Rain Creek	
	Tohickon	
•Kings Gap Envi. Education Center Staff	Kings Gap Site 1 & 2	Cumberland

Five Year Monitors

Name	Stream	County
•Charlestown Nature Center	Rocky Run	Chester
•Arnold Mahey	Beaver Creek	Dauphin
Swatara		
•Paula Sassman	Morris Road Creek	Perry
•Edith Brown	Jackson Run	Perry

Four Year Monitors

Name	Stream	County
•Richard Dougall	Pine Creek	Allegheny
•Frank Keim	Saucony	Berks
	Little Lehigh	
	Spring Creek	
•Marcus Sheffer	Cono Creek #3	Cumberland
•Broadbent	Nescock	Luzerne
•James Lennox	Walton's Run	Luzerne
	Phillips Creek	Luzerne
	Huntingdon Creek	Luzerne
	Kitchen Creek	Luzerne
	Shady Nook Lake	Sullivan
	Big Loyalsock Creek	Sullivan
	Fishing Creek	Columbia
•Howard Landis	Perkiomen Cr (EB)	Montgomery
•Beth Keller	Bushkill #1	Northampton
•Ralph Hepler	Mahantango #1	Schulykill
•Jon Weaver	Kettle Creek	Sullivan
•Frank Karfelt	Mammoth Lake	Westmoreland
•Lorna and George Joiner	Spring Valley Brook	York

ALLARM REQUEST FORM

ALLARM T-SHIRTS- A fun and comfortable way to spread the word.

ALLARM t-shirts are white with kelly green logo (see below), 100% cotton. Choose from small, medium, large, and extra large. Fill out the form below and return it to the ALLARM office with $10.00 per shirt.

Please send me _____t-shirts at $10.00 apiece. Size_____

• NEW ITEM • **ALLARM BASEBALL CAPS-** After many requests, we now offer white ALLARM baseball caps, printed with the kelly green logo shown below. The hats are 100% cotton. One size fits all.

Please send me _____caps at $6.00 per cap.

DONATIONS

I would like to make a donation to ALLARM in the amount listed below.

_____$50, _____$30, _____$20, _____$10, _____other ($_____)

NAME _____

ADDRESS_____

PHONE ( ) _____

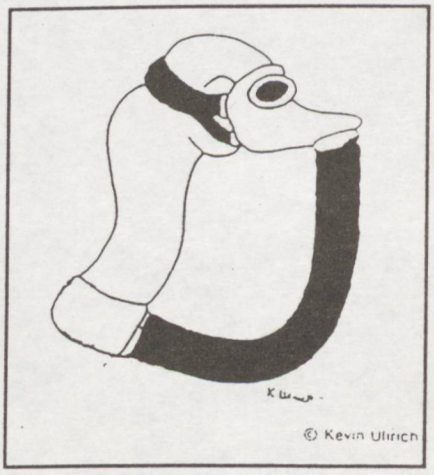
Are Incineration and Ocean Dumping One and the Same?

by Colleen Thompson

Evidence is surfacing that incineration is doing more damage to our environment than was previously estimated. According to the March 18, 1992 issue of *RACHEL'S Hazardous Waste News*, which is published weekly by the Environmental Research Foundation, our oceans and other large aquatic systems are suffering from the contaminants produced by the combustion of our trash.

The damage is being felt in a very tiny--but **crucial**--layer on the surface of such large bodies of water such as the ocean, the Chesapeake Bay, and the Great Lakes. This filmy layer, known as the sea-surface microlayer, is home to a wide variety of plants and animals. As it is nutrient rich, it is an attractive nursery for fish eggs and larvae.

The sea-surface microlayer is unfortunately also a hospitable place for contaminants to collect. The contaminants are most detrimental to fish eggs and larvae, the very organisms occupying this important niche. *RACHEL'S* points out that we can already see the economic repercussions of this contamination in the outrageously high prices of fish. Also explained is that there is a chance of banning incineration within several hundred miles of an ocean.



RACHEL'S cites a prior court case in which the U.S. EPA successfully argued that ship-based incineration is a form of ocean dumping, as the emissions ultimately end up dispersed on the ocean's surface. It is suggested, then, that on the same grounds, incineration that takes place within any reasonable distance from the ocean is well within the definition of ocean dumping, and permitting the incinerator's license would be in violation of the Ocean Dumping Act [the Marine Protection, Research and Sanctuaries Act, 33 U.S.C. 1401-1444, as clarified by *RACHEL'S*].

MEET THE STAFF

by Matt Franke

As you know, ALLARM's staff is comprised of students at Dickinson College, under the direction of Dr. Candie Wilderman. Dr. Wilderman is an Associate Professor of Environmental Science, and chairs the Environmental Studies program at Dickinson. The staff would love to get to know all of the monitors personally--we know so many of you from workshops, letters, phone calls, and pictures--keep them coming! To assist you in getting to know us better, here is a brief description of who we are and what we do for ALLARM.

Matt Franke, SENIOR: Matt has returned from his year abroad to continue doing Quality Control. Currently, he is designing and testing a new field kit and protocol for alkalinity and pH that will have a smaller margin of error than the kit that we are currently using. He is a biology major, and has earned his Environmental Studies Certificate.

Matt Kloiber, SENIOR: In his second year with ALLARM, Matt has concentrated most of his energy this semester on Data Entry. Matt has also played a critical role in several school projects and programs. He is a Policy and Management Studies major, and has earned his Environmental Studies Certificate.

Colleen Thompson, SENIOR: Colleen is also returning to the staff for her second year of service. Her chief task this semester has been to organize and edit all of the articles for *Stream of Consciousness*. Colleen has also been involved in several school projects. She is an Anthropology major, and has earned her Environmental Studies Certificate.

Carmen Irizarry, Junior: Carmen has been working for ALLARM since her freshman year at Dickinson. Her specific job protocol has varied throughout her four years, but she is best known for her innovative personalized data forms that have helped our office organization so much. Carmen is currently engaged in a study of various watershed projects. She is a Psychology major, and is working towards an Environmental Studies Certificate.

Cristin Tighe, Junior: Cristin joined our staff this summer, as she single-handedly staffed the office. She has continued to lend her organizing talents this semester as our Office Manager. In addition, Cristin has been instrumental in a recent school program and in finishing a new, professional ALLARM display. (The display may be used by volunteers or Regional Coordinators for meetings, conferences, etc. Call us if you are interested!) She is an American Studies major, and is working towards an Environmental Studies Certificate. Unfortunately, Cristin will be leaving us for a semester in Cameroon, West Africa.

Jennifer Sloan, Junior: Jen has joined the ALLARM staff as an intern for course credit at Dickinson. Her chief project this semester has been to coordinate and plan for a Regional Coordinators Program, including the initial training workshop. Jen is a Policy and Management Studies major, working towards an Environmental Studies Certificate.

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