1997-98 SESSION COMMITTEE HEARING RECORDS

Committee Name:

Senate Committee on Agriculture and Environmental Resources (SC-AER)

Sample:

- Record of Comm. Proceedings
- 97hrAC-EdR_RCP_pt01a
- 97hrAC-EdR_RCP_pt01b
- 97hrAC-EdR_RCP_pt02

- *Appointments ... Appt*
-
- *Clearinghouse Rules ... CRule*
-
- *Committee Hearings ... CH*
-
- *Committee Reports ... CR*
-
- *Executive Sessions ... ES*
-
- *Hearing Records ... HR*
- *97hr_sb0415_pt02*
- *Miscellaneous ... Misc*
-
- *Record of Comm. Proceedings ... RCP*
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LOCAL STORY: SMELTER SHUT DOWN – WHAT'S NEXT?

Until 1995, Michigan's Upper Peninsula had the dubious distinction of being home to the single largest source of mercury emissions on Lake Superior. In a victory for enforcement of environmental laws over political pressure, the copper smelter at White Pine, 33 miles north of the Wisconsin border in Ontonagon County, Michigan, was shut down in 1995. But left behind were 14 square miles of contaminated land, and 1,000 unemployed workers.

The copper smelter owned by the Copper Range Company at White Pine began operations in the 1950s, processing copper from the company's nearby underground mine. Due to political pressure from an influential Michigan legislator, emissions at the facility were not monitored until the early 1990s – a decade after monitoring was required by federal law.

At that time, the U.S. Environmental Protection Agency estimated that the smelter was spewing 1,340 pounds of mercury into the air every year, making it by far the largest mercury polluter around Lake Superior. By comparison, the Western Lake Superior Sanitary District's incinerator puts out a much lower, although still-hefty amount of 96 pounds of mercury into the air annually.

In addition to mercury, the smelter was emitting arsenic, beryllium, cadmium, chromium, cobalt, copper, manganese, nickel, lead, antimony, and selenium into the air. And it violated soot limits.

"When my grandfather, father, and I fished downwind of the Copper Range Company, we would look back at the dark plume and feel sad about the pollution," says local resident David Anderson. "Pretty soon, young women were told they shouldn't eat the fish. Then when my first son was born, he couldn't eat the fish. Pollution has ruined my family's tradition, passed down through the generations, of eating off the land. You don't have to be living a subsistence lifestyle or be Native American to have fishing be part of your family culture."

The Michigan United Conservation Clubs and the National Wildlife Federation brought a citizen suit against the Copper Range Company. The company agreed as part of a settlement that it would either build a new, cleaner smelter or close the facility by a certain date. The company closed the smelter, citing rising production costs, declining ore grades, and deteriorating mining conditions. Others linked the closure, which put 1,000 people out of work, to the company's failure to upgrade its technology and operations, as well as its history of environmental contamination.

The story didn't end with the shutdown of the smelter. For the past two years, the company has sought permits for a new, less-polluting smelter. After traditional mining ended in 1995, Copper Range Company went ahead with an attempt to remove ore remaining in the mine using a technique known as "solution mining". In June 1997, Copper Range Company canceled its plans for solution mining, citing declining prices for copper and rising costs for operations. It has sold the remaining refinery to Broken Hill Proprietary, an Australian mining interest which owns extensive mineral rights in the United States. Permits for a new smelter are still pending.

"The people of Ontonagon County, Michigan face a combined plague of job loss and environmental pollution," says Anderson. "It's double jeopardy for the working poor. Without jobs, we need to hunt and fish even more to put food on the table, and yet, women and children shouldn't eat what we catch."

Anderson suggests that the "boom and bust" development of the past 100 years has pitted jobs against the environment and people against people in the Upper Peninsula. In its place, he advocates developing sustainable, environmentally friendly job opportunities. The maple sugar, fish, and wild rice industries, managed in harmony with the land, could provide thousands of jobs, he says. He also sees the area as ripe for renewable energy projects, as well as environmentally friendly manufacturing.

And he even sees the White Pine facility as offering job opportunities that will help the environment. For example, the 11 square miles of abandoned mine tailings, currently an environmental threat, will be the subject of environmental research while it is being cleaned up. Sustainable development efforts, though, need start-up funding from government agencies, who to date have been deaf to the need, according to Anderson.

How much clean up will actually occur at the White Pine facility is currently the subject of negotiations between Copper Range Company and the state of Michigan. Weak state laws mean that the only guaranteed clean up is the installation of flow inhibitors in the underground mine in an effort to prevent salty water in the mine from reaching the surface. The question of what will happen with the dangerous mine tailings, as well as materials left at the site such as transformers containing cancer-causing PCBs, is still unanswered.

Permitting, like every other approach to air pollution regulation, has its limitations. First, there are the numerous exemptions. In general, small sources of air pollution are exempt from permitting, because they are considered to be a bad use of the limited resources of government permit writers. There are two potential problems with this exemption for small sources. First of all, some companies don't apply for permits because they think they are small, when in fact they are not. It might take years for the government to discover that a company is not exempt from permitting, and in the meantime, the company may be emitting unacceptable levels of air pollution. A related problem is that small is not necessarily clean or safe. Some states only permit sources if they are emitting 20,000 pounds or more of toxic pollution. For some pollutants, that may be a reasonable approach. But if the company is emitting "only" 10,000 pounds of a toxic metal into a neighborhood, there may be serious problems.

A second major limitation of permitting is the review process. There is often very little data available to assess the likely emissions from a particular process. Government permit writers often find the only source of data is the company applying for the permit, whose objectivity might be questionable. There is also too little time or resources for government permit writers to suggest better cleaner alternatives to a company. They usually only have time to decide if the company's proposal is legal - not if it is optimal. And they rarely have the resources to determine the economic feasibility of various options. Sometimes permit writers just end up taking the company at their word. And

sadly, the public rarely takes advantage of their legal right to review, comment on, and challenge proposed permit decisions.

Finally, it has been said that the biggest drawback of permitting is that it draws government resources away from compliance and enforcement activities. In some state air pollution agencies, fully half of the technical staff (and a comparable portion of the budget) are dedicated to permit writing. This means that it is especially important that the permits these agencies issue do a good job of preventing air pollution.

F. Great Waters Requirements of the Clean Air Act

The 1990 Clean Air Act Amendments directed EPA to make special efforts to investigate and solve the problem of damage to the Great Lakes and other "Great Waters" from atmospheric deposition (i.e., toxic fallout). The following actions were mandated:

1. A scientific assessment of the problem, including causes and effects;
2. Creation and operation of an atmospheric deposition monitoring network;
3. Periodic reports to Congress on Great Waters activities and progress; and,
4. Development of additional regulations (if needed) to solve the problem.

EPA's first Great Waters report to Congress was issued in May of 1994, and the second report was released in June of 1997. These reports present an impressive body of evidence demonstrating that atmospheric deposition substantially contributes to pollution of the Great Lakes, and that wildlife and people are put at substantial risk by that pollution. Fifteen specific pollutants of concern are identified.

The first Great Waters report recommended several concrete actions that could and should be taken to address this problem. One recommendation was that Congress should develop legislation prohibiting the export of any pesticide that cannot legally be used in the United States. Another recommendation was that EPA should reconsider how it defines a "major source" of toxic air pollution (20,000 pounds per year of any single toxic pollutant or 50,000 pounds per year of all toxics combined).

The "major source" definition is very important because in most cases the technology-based standards described above only apply to major sources, or a lower standard is applied to smaller sources. In the first Great Waters report, EPA recognized that 20,000 pounds per year is an absurdly high threshold for many of the pollutants of concern. Many pollution sources that may be posing serious environmental or public health problems could be unregulated or under-regulated as a result. For example, "minor sources" can include factories that emit 1,000 pounds of mercury a year, enough to pollute billions of pounds of fish - hardly an amount that should be considered minor!

Unfortunately, as the second Great Waters report explains, neither of these excellent recommendations has been adopted. The recommendation on pesticide exports was rejected by a Congressional committee in 1995, so the U.S. continues to export (mostly to developing countries) chemicals such as DDT deemed too dangerous to use at home.

And on the "major source threshold" issue, EPA reversed its opinion almost before the ink had dried on the first Great Waters report. The official explanation is that the agency has the authority to regulate emissions from minor (a.k.a. "area") sources, so there is no need to change the definition of major source. This appears reasonable at first, but unfortunately the record to date shows that most technology-based standards developed after the first Great Waters report was issued do not regulate area sources, and the few exceptions apply more lenient standards to area sources.

The failure to implement Great Waters report recommendations underscores a continuing problem with federal toxic air pollution regulations: when faced with uncertainty, the government (under pressure from industry lobbyists) almost always chooses to do more research before taking reasonable action. The end result is that EPA is more or less meeting the first three goals of the Great Waters program (listed above) but failing to do almost anything on the fourth and most important goal.

G. Virtual Elimination Campaigns

In 1978, the United States and Canada signed a Great Lakes Water Quality Agreement in which they pledged:

> "...(I)t is the policy of the Parties that... the discharge of toxic substances in toxic amounts be prohibited and the discharge of any or all persistent toxic substances be virtually eliminated."

Between 1978 and 1987, both countries made a great amount of progress in reducing direct water pollution into the Great Lakes, yet contamination persisted. The problem, researchers discovered, was that much of the toxic pollution was coming from the air. Greater emphasis was placed on toxic air pollution in a second 1987 Great Lakes Water Quality Agreement, which included the following specific commitments:

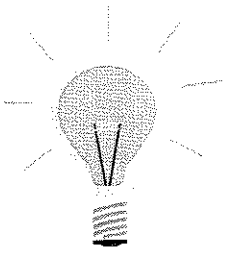
> "(a) The Parties, in cooperation with State and Provincial Governments, shall develop, adopt and implement measures for the control of the sources of emissions of toxic substances and the elimination of the sources of emissions of persistent toxic substances in cases where atmospheric deposition of these substances, singly or in synergistic or additive combination with other substances, significantly contributes to pollution of the Great Lakes System. Where such contributions arise from sources beyond the jurisdiction of the Parties, the Parties shall notify the responsible jurisdiction and the Commission of the problem and seek a suitable response.
>
> (b) The Parties shall also assess and encourage the development of pollution control technologies and alternative products to reduce the effects of airborne toxic substances on the Great Lakes System."

This year the U.S. and Canada took another major step forward when the environmental agencies of both countries agreed to a Great Lakes Binational Toxics Strategy, which includes very specific and ambitious goals, actions, and deadlines spanning the next 10 years. The scope of the agreement covers 26 pollutants or groups of pollutants, including many of the ones discussed earlier in this report. And for the first time, there is now a comprehensive written commitment to quantifiable objectives, enabling the public to evaluate progress. For example, the U.S. commits in this agreement to a 50% reduction in mercury emissions over the next 10 years, and a 75% reduction in dioxin pollution.

The Binational Toxics Strategy is a different approach to cleaning up the lakes than those discussed previously. It depends heavily on an old cliché, "what gets measured gets managed," and it assumes that realistic but ambitious goal setting can challenge and motivate people. It makes use of comprehensive and innovative strategies, including public education, pollution prevention, and other voluntary approaches. (Some of these innovations will be discussed in more detail in the next chapter.) Although the Strategy may often benefit from the results of regulatory programs, it is not itself regulatory.

It remains to be seen whether the Binational Strategy will be successful in meeting its goals and cleaning up the Great Lakes. Virtual elimination pilot programs and other voluntary pollution reduction campaigns have been surprisingly successful in the past, both in Canada and in the United States. Some companies simply respond better to challenges than requirements. In any event, the Binational Strategy allows the opportunity to address Great Lakes problems from both sides of the border, and is therefore of value.

Chapter IV – New Approaches for Clean Air



The current solutions described previously have been quite successful in reducing some of the most serious risks from toxic air pollution. But when you consider the 8 billion pounds of toxics emitted into the air each year, you must conclude that their are some pretty big holes in our existing regulatory umbrella. It is apparent that the current solutions, alone, are not enough to solve this problem.

If we truly want clean, healthy air for everyone, we need to consider new ideas. In this chapter, we will discuss some of the most promising new approaches to solving toxic air pollution problems. The new approaches can be divided into five broad categories:

- ☑ Changing how we determine what's safe and acceptable;
- ☑ Changing who we regulate;
- ☑ Preventing problems instead of cleaning up afterwards;
- ☑ Using economic forces to clean up, rather than pollute, our air; and,
- ☑ Community initiatives/partnerships – taking the problem into our own hands.

As we continue with this discussion, keep in mind that these new approaches are intended to fill the gaps and supplement (not replace) the current regulatory regime.

A. Changing How We Determine What's Safe and Acceptable

Most health effects research is based on studies of young and middle aged working men with no pre-existing health problems. By and large, this is a subset of the population that is *least* likely to be adversely affected by toxic exposures.

One of the first and most important changes to consider involves how we determine safe or acceptable levels of air pollution. Most health effects research is based on studies of young and middle aged working men with no pre-existing health problems. By and large, this is a subset of the population that is *least* likely to be adversely affected by toxic exposures. Unfortunately, these studies have usually been the basis for EPA's determinations of "safe" levels of air pollution. The effects of toxic air pollution on women, children, the elderly, and the sick are mostly unknown and are often not a part of the decision making process.

Even less is known about the interactive effects of toxic air pollution – that is, if you are exposed to a combination of two or more toxics at the same time, are the effects somehow different than if you are exposed to them individually? There are some preliminary scientific findings that suggest that combinations of chemicals at low concentrations can produce adverse health effects that none of the chemicals could produce individually. This is very disturbing, and certainly calls for much greater research and regulatory attention.

A second problem is that EPA has focused almost exclusively on cancer risks when determining safe levels of air pollution. It is now well known that some health effects, such as birth defects and learning disorders, might result from levels of pollution too low to cause cancer, and thus wrongly considered "safe".

Another big gap in the regulatory safety net is that we do not consider the cumulative or indirect effects of exposure to toxic chemicals from many sources. For example, the currently existing toxic air pollution regulations focus on one company at a time. If company X reduces their pollution just barely below the level at which it causes health problems, and company Y across the street does the same thing, then the cumulative effects of the two companies' emissions are likely to cause health problems. Bioaccumulation is an example of indirect effects that has already been discussed in this report.

Obviously, there are many shortcomings to the current approach. But there is a better way! In future determinations, EPA should expand their review of health effects data as follows:

☑ ensure protection of the ***entire*** population, including women, children, elderly, and the sick;
☑ consider ***all*** types of health effects, not just cancer;
☑ consider indirect effects such as bioaccumulation; and,
☑ consider the cumulative effects of exposure to multiple pollutants from multiple sources.

Before we move on to other categories of new approaches, let's look at a specific example of the shortcomings in our current regulations, and a specific program already under way where EPA has an opportunity to apply some of the above principles to improve the situation.

❖ *Pesticides – Protecting Our Food, or Poisoning Ourselves?*

Certain pesticides are known to be quite dangerous to our health. Sale of most of these products is forbidden in this country. However, many pesticides currently on the market have never been tested to see if they are likely to cause birth defects, developmental effects in children, or infertility. Current pesticide regulations simply do not provide enough protection for infants and young children.

One opportunity we have to protect ourselves and our communities is to tell industry and EPA to conduct *comprehensive* reviews of new chemicals before we dump thousand of pounds of them onto our fields and food supplies. Specifically, two acts of Congress (TSCA, the Toxic Substances and Control Act and FIFRA, the Federal Insecticide, Fungicide and Rodenticide Act) require that chemicals be tested safe before they are "registered" and allowed to be used. EPA should be asked to consider other harmful effects in addition to cancer, such as birth defects, before they register new chemicals.

❖ *Urban Air Pollution – Why Doesn't Someone Do Something About It?*

Given the number of people who live in large urban centers, it would seem reasonable to take steps to reduce pollution there. After all, in these days of tight budgets, Congress is especially worried about how much bang we get for a buck.

EPA is specifically required by section 112(k) of the Clean Air Act to address toxic air pollution problems in *urban* areas.. It is the only part of the Clean Air Act that focuses on the cumulative effects of multiple toxic air pollutants from many different sources. The agency has, unfortunately, been slow in carrying out this requirement – a comprehensive control strategy addressing "not less than 30 hazardous air pollutants" that was due to Congress in 1995 is still not complete. A possible approach would be for individual communities to develop strategies of their own. These strategies could be tailored to the needs and sources in specific areas.

Another approach would be for EPA to jump immediately to the protecting public health phase of the Clean Air Act requirements. In following the Act, EPA has become bogged down in the science – just exactly which of the toxic air pollutants listed in the act are the 30 worst? And just who are the polluters responsible for 90 percent of the emissions? These are not easy questions to answer, nor good places to start.

Fortunately, though, there is an alternative strategy that would let EPA jump to the critical part of the analysis – how do we reduce cancer by 75 percent? Instead of limiting themselves to just the top thirty, they can instead use the "not less than" part of the law, and pick all known or suspected carcinogens, which number more than thirty. Next, EPA can focus on every source category known to emit these selected chemicals, or EPA can look at the source categories responsible for 90 percent of the pollution, the minimum required by the Act.

In less than a month, EPA could short circuit the review that has taken seven years to date, with no end in sight. After taking this across the board approach, EPA could turn attention to the critical task – figuring out ways of actually reducing cancer risk.

A coordinated attack on pollution in our cities is sorely needed. It turns out that the same exact sources contribute to a number of our urban air pollution problems. Cars, of course, are a big polluter – they help cause smog, soot and toxic pollution problems. And the same urban factories that emit the hydrocarbon contributors to smog in most cases also emit toxic air pollution.

B. Changing Who We Regulate

As we pointed out in our earlier discussion of the problem, large factories collectively account for just 30% of total toxic air pollution in the United States, yet they receive almost all of the attention from federal and state regulators. Certainly these large factories deserve close scrutiny and tough standards, but what about the other 70% of emissions?

Let's discuss two examples where we should consider new approaches to who and what the government regulates: "minor" sources (i.e., small factories and businesses) and mobile sources.

❖ *Making "Minor" Sources "Major" or Calling a Spade a Spade*

The intended purpose of classifying sources as "major" or "minor" is to ensure that regulations target the most significant polluters. Major sources are subject to strict permitting, reporting and emission control guidelines, while minor sources usually are not.

But there is a big problem. As mentioned in the previous chapter, EPA's *Great Waters Reports* conclude that even small amounts of the worst pollutants can harm the Great Lakes. For these pollutants, the current definition of "major source" (one that emits more than 20,000 pounds of any particular toxic air pollutant, or 50,000 pounds of all toxic air pollutants, combined) is inadequate, because it treats all chemicals equally and ignores toxicity.

The first *Great Waters Report* recommended development of lower "major source" thresholds for those pollutants doing the most damage to the Great Lakes. This was an excellent recommendation, but it has never been implemented.

EPA currently has the authority to require strict emission controls even on minor sources, if they find it necessary to protect public health and the environment.[1] This authority to regulate minor sources is used as an argument by those (including the agency's top managers) who say it is unnecessary to lower the major source thresholds. And it might be a valid argument, if only it were happening. But the truth is that EPA has finalized 15 toxic air pollution regulations since the first Great Waters report was issued, and in all 15 cases they have ruled that there was no need to impose emission controls on minor sources. Four of these regulations affected sources that emit dioxins, the most potent industrial chemical known.

It is apparent that the existing approach (controlling minor sources if EPA decides it is necessary) is not accomplishing anything, because EPA always decides it isn't necessary. It is time to end this game of "pass the buck" and reconsider the alternative approach of lowering the "major source" thresholds.

❖ *Reducing Pollution from Cars*

Cars and trucks are responsible for a huge amount of pollution, especially in cities. According to EPA, "mobile sources" collectively emit 39 percent of total toxic air pollution in this country - yet there are practically no toxic air pollution rules or standards for mobile sources.

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[1] In the Great Lakes region, this approach is already used at the state level by Michigan and Wisconsin regulators, who base emission control requirements on the toxicity of specific pollutants, regardless of the major/minor source distinction.

EPA has the authority and the responsibility to regulate cars, but has done little to address cars' toxic air pollution. What is desperately needed is a comprehensive strategy for mobile source that considers all of the following:

- ☑ how we use and maintain our cars;
- ☑ what fuels our cars burn;
- ☑ how efficiently our cars use fuel; and,
- ☑ pollution control devices for vehicles.

A few specific examples of what this new approach might entail are worth discussing here. For example, many states are currently considering inspecting passenger cars on a regular basis to guarantee that their emission control systems are properly maintained and functioning correctly. This is a good example of how we might address both the use/maintenance element and the pollution control element of a comprehensive strategy.

As for the second element of the strategy, consider our use of diesel fuels. Diesel exhaust is especially harmful to public health. In addition to containing toxic compounds, it also contributes to soot and smog. The impacts from diesel trucks and buses is especially severe, since tailpipes put the pollutants directly into areas where residents walk and breathe. In fact, researchers at the University of California found that non-smokers who live in areas with relatively high levels of smog and other pollutants have lung damage approximately 50-75 percent as severe as that of pack-a-day smokers![2] Our comprehensive strategy should include ways to discourage, reduce, or eliminate the use of dirty diesel fuels.

Finally, let's look at three examples of how we can use fuel more efficiently, and consequently reduce toxic air pollution. The most obvious and most important way is to require better miles-per-gallon performance from all new vehicles. There are requirements of this type in place already, such as Corporate Average Fuel Economy standards, but they are absurdly lenient. New passenger cars sold by U.S. automakers must average 27.5 miles per gallon. This standard hasn't changed in more than 10 years, despite all of our advances in automotive technology, because of relentless corporate lobbying. Pickups, minivans, and sport utility vehicles, which now total about 40% of all new vehicle sales, need only average 20.7 miles per gallon. Better mileage standards would translate into reduced toxic emissions, less smog, lower gasoline costs for consumers, and reduced oil imports.

One of the biggest, cheapest ways to reduce exposure to toxics from gasoline would be to require "vapor recovery" at gas pumps – the double-hose pumps that collect gasoline vapors from our tanks when we re-fuel at some gas stations. Alternatively, we could require "on-board vapor

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[2] Tashkin, et al., "The UCLA Population's Studies Chronic Obstructive Respiratory Disease: XI - Impact of Air Pollution and Smoking on Annual Changes in Forced Expiratory Volume in One Second", American Journal of Respiratory Critical Care Medicine, 1994, 149: 1209-17.

recovery" in new cars, which capture vapors leaking from gas tanks no matter what gas station you use. While gas stations are not the biggest source of toxic air pollution, there may be few other places where our families breathe as many toxic fumes, many of which cause cancer.

A third opportunity for combating toxics from cars is regulation designed to reduce gasoline and pollution *leaks* from auto and trucks. So-called "evaporative losses" dump toxics into the air from places as innocuous as our driveways. As part of a comprehensive mobile sources strategy, EPA should focus on the fact that cars leak gas vapors, and require car makers to reduce such losses.

C. Preventing Problems Instead Of Cleaning Up Afterwards

In the past, industrial advances and growth were viewed as inherently good. Pollution was considered by most to be an unavoidable (and therefore acceptable) consequence of economic development. Then, as society came to realize the damage done by pollution, we reacted by telling companies to capture and clean up the junk coming out of their stacks and pipes. The technology standards described in the previous chapter demonstrate how much emphasis the Clean Air Act places on cleaning up with expensive pollution control devices.

But things are changing in the 1990s. The most promising new approaches to environmental protection are founded on the principle of pollution prevention, which acknowledges that it is easier and less expensive to prevent problems than it is to solve them after the fact. In less than a decade, an entire industry and profession dedicated to pollution prevention has developed and matured, and a promising new concept called "Design for the Environment" is gaining popularity. What it requires is that engineers and scientists consider environmental consequences as one of the key design factors in their work.

The challenge is to invent new products and processes in such a way that less pollution and/or less toxic pollution is created. Not only does this approach minimize the need to control pollution, it often does so in ways that save companies money. Needless to say, this is extremely motivating. In many industries, toxic emissions have been dramatically reduced or even eliminated, not because of government rules, or expensive control technologies, but because somebody figured out a more profitable way to get work done without polluting.

Pollution prevention is undoubtedly the preferred approach to toxics problems, and the best hope for real, long-term solutions. It should be the cornerstone of our new approach to solving toxic air pollution problems. As an example, consider incinerators. Scientists have already established that incinerators are the leading source of dioxin emissions in this country. The traditional approach would be to put expensive control devices on the incinerator smoke stack to reduce dioxin emissions. The pollution prevention approach, on the other hand, is to reduce the amount of waste we generate, thereby reducing the need to incinerate, and thus bringing down dioxin emissions. This is inevitably cheaper and more effective.

RESTORING A WILDERNESS

Many people think of Michigan's Upper Peninsula as pristine wilderness. That's undoubtedly most people's impression of Isle Royale National Park, a 134,000 acre island park in Lake Superior.

What a lot of people don't know is that, from the 1960s until 1995, three incinerators located in the park burned waste generated by visitors to Isle Royale. Waste incinerators spew a variety of toxic pollutants, including the highly toxic substance dioxin.

"Isle Royale has been used for years by researchers studying air pollution because it was believed to be pristine," says Gayle Coyer of the Upper Peninsula Environmental Coalition, a 350 member group dedicated to preserving the unique environmental quality of the Upper Peninsula. "What an irony to learn that incinerators were emitting toxics right on the island."

Today, Isle Royale is not only incinerator-free, but has a model solid waste management program. It happened when a change in park management and staff coincided with pressure from local environmental organizations.

In mid-1995, the state of Michigan told park officials that its three old incinerators were unlicensed and violated numerous air pollution rules. Already aware that the old incinerators needed to be replaced, park officials had applied for permits to build new, less-polluting incinerators. When environmental groups and even some park employees questioned incinerating on the island at all, management listened.

"We felt strongly that the National Park Service should be a leading environmental organization, and not trailing along behind," says Park Superintendent Doug Barnard.

The request for the incinerator permits was put on hold. The Park Service hired a consultant to review solid waste disposal options. Despite the fact that the incinerators had the lowest economic cost, the Park Service chose a recycling-and-hauling option.

"Environmental organizations acted as a spur at this point," Barnard says. "They said they would oppose licensing the incinerators at the state level. And even though we were sure new incinerators would meet existing standards, we decided it wouldn't be morally right. So we decided to try the alternate approach. Even though recycling and hauling cost more, it had a lower long-term cost in terms of the environment, and the environment was uppermost in our minds."

The solid waste program, which operated on a trial basis in the 1996 season and is being made permanent in Summer 1997, includes mandatory recycling for employees and concessionaires, voluntary recycling for visitors, and compaction and removal of remaining garbage to the mainland, where it is handled by a sanitation company. Solid waste is removed from the island by the park's regular boat and an army-surplus "LCM". Isle Royale staff located and obtained the army-surplus craft, which would have been prohibitively expensive new, free of charge except for the cost of transporting it by flatbed truck from Tacoma, Washington.

"The program has been highly successful even beyond our expectations," says Barnard. "Visitors and employees are even more cooperative than we thought they would be."

Another important application of this new approach is chemical accident prevention. Some of the most dangerous exposures to toxic air pollution occur as a result of accidents (e.g., the Bhopal tragedy). Many companies in the U.S. are now required to develop chemical accident prevention plans, and in doing so there may be opportunities for communities to review these plans and offer suggestions for improvement.

Prevention principles can also apply to some of the other major toxic air pollution problems discussed in this report. To reduce risk from pesticide exposures, we should find ways to reduce the use of pesticides. And to reduce toxic pollution from utility power plants, we should think about energy conservation. Let's look at each of these examples more closely...

❖ *Reducing the Use of Dangerous Pesticides*

One environmental crime that EPA currently allows is the production of banned pesticides for sale to other countries! If it's clear that these chemical cause problems, and this is clear, then selling them to other countries is guaranteed to cause health risks there. And when we sell certain pesticides to Mexico, the pollutants still end up in the Great Lakes after being carried all the way here on the wind.

As mentioned in the last chapter, a Congressional committee rejected EPA's *Great Waters Report* recommendation to prohibit the export of any pesticide which cannot legally be used in the United States. Barring a change of course by Congress, we must consider alternative ways to meet this worthy goal. One simple and potentially effective solution to part of this problem is to let companies know that we are outraged and simply will not accept the domestic production and export of known carcinogenic pesticides. Even if a ban is not possible, EPA should *encourage* companies to cease production of these products. As citizens, we can call on EPA and the manufacturers to take this simple step.

In the meantime, we can and should reduce the use of pesticides in the United States. Several tests of lawn herbicide use have found significant contamination levels inside homes after pesticides were applied outside.[3] Just like dirt or snow, herbicides cling to feet, shoes, and pets, and are then tracked into the house. Once again, an ounce of prevention is worth a pound of cure. Buying organic food, where it is available and affordable, is one way to do this. Another is to carefully consider and minimize our own personal use of pesticides around the home, lawn, and garden. And a new science called Integrated Pest Management is very promising, because it

...we can and should reduce the use of pesticides in the United States. Several tests of lawn herbicide use have found significant contamination levels inside homes after pesticides were applied outside. Just like dirt or snow, herbicides cling to feet, shoes, and pets, and are then tracked into the house.

[3] For example, Nishioka, M. et al., "Measuring Transport of Lawn-Applied Herbicide Acids from Turf to Home", Environmental Science and Technology, Volume 30, Number 11, November 1996.

uses natural means of controlling pests (for example, making use of certain *harmless* insects that naturally prey on harmful insects).

An often overlooked benefit of reducing the use of pesticides are the so-called upstream benefits. There can be dangerous emissions of poisons during the manufacture and shipping of pesticides. Some of the accidental emissions dwarf the impacts of intentional uses. While the accidents are not on purpose, they do have a significant effect on the environment. With lower usage of pesticides, there would be fewer chances for the accidents to happen. An example is the fire at the Helena, Arkansas pesticide plant on May 8, 1997. Accidents of this magnitude can only occur if there is demand for the pesticides. If fewer people had needed pesticides, the impact of the fire might have been smaller since a smaller quantity of the chemical might have been on site, or the plant itself might have been devoted to other, less harmful uses.

❖ *Use Conservation, Not Coal*

Power plants dump millions of pounds of toxic pollutants into the air every year, largely from the burning of coal, but also from oil and even natural gas. Alternative sources of electricity (waste-to-energy incineration being a significant exception) produce fewer, if any, toxic emissions.

Using energy more efficiently reduces the need to burn fossil fuels to produce energy, translating directly into lower toxics emissions. That is, if efficient light bulbs, for instance, provide the same amount of light, but require less energy (fewer kilowatt-hours), then less coal, gas or oil has to be burned to provide that electricity; with less fuel being burned, the pollution associated with that fuel is not created, resulting in fewer toxics in the air. Conservation can reduce thousands of pounds of mercury, arsenic, nickel, chromium, cadmium, hydrochloric acid gas, hydrofluoric acid gas, and acrolein pollution every year!

COMMUNITY-BASED ENERGY CONSERVATION

The citizens of Merrill, Wisconsin, are helping reduce toxic air pollution. So are the citizens of New London, Milwaukee, Viroqua, Madison, Mayville, and Horicon, Wisconsin. They're doing it by conserving electricity.

Although many people think first of reducing their electricity use in order to reduce their utility bills, energy conservation also reduces emissions of toxics. Mercury, lead, arsenic, cadmium and other toxic substances are emitted from the smokestacks of the coal, oil, gas, and wood-burning power plants that provide electricity across the Great Lakes states. These toxics are currently unregulated. In addition, power plants dump other pollutants into the air that contribute to acid rain, smog, and global warming.

One way to reduce toxic pollutants from electric utilities is to build cleaner power plants. Another is to reduce our use of electricity by improving the efficiency with which we use it. There's a role for every person and organization in energy efficiency – from industry developing "super efficient" products, to governmental agencies setting minimum efficiency standards, to electric utilities helping customers reduce their use, to communities, businesses and individuals adopting energy efficient technologies from air conditioners to light bulbs.

Merrill, a town of 9,860 in northeastern Wisconsin, was one of six Wisconsin communities that implemented community-based conservation projects sponsored by electric utilities in the early 1990s. The communities ranged from small towns to neighborhoods of Milwaukee.

Merrill's local utility, Wisconsin Public Service Corp., had a major role in the project. A group of 17 Merrill area residents provided advice to the utility, particularly by identifying marketing and promotion approaches appropriate for their community. Residential, agricultural, industrial, and commercial customers were offered opportunities to improve their energy efficiency. Residential customers, for example, were offered cash or savings bonds to turn in old, unneeded refrigerators, freezers, or air conditioners; and compact fluorescent light bulbs were sold door-to-door.

Community involvement had a big impact on the commercial part of the program. A member of the community committee who was a fire inspector suggested that fire department employees market efficient exit sign bulbs during their regular inspection visits to businesses and multi-unit residences. Over 700 efficient exit light bulbs were installed. The low-cost marketing approach was so successful that it is being promoted among fire inspectors statewide.

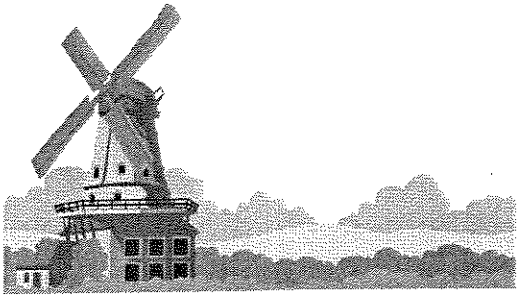
By the end of the project, nearly 14 percent of Merrill-area households had participated. About 600,000 kWh of energy are being saved each year – enough energy to supply over 75 typical Merrill households. Demand has been reduced by about 100 kW in summer and nearly 150 kW in winter.

Today, increasing competition in the electric industry means that local communities wanting to conserve energy as a community can't assume their local utility will necessarily take the lead. Kathy Kuntz of the Energy Center of Wisconsin says, "The changing regulation of the electric utility industry means that most future community-based projects will probably not be funded by utility dollars because utilities will not be as tied to particular geographic communities the way they are now."

A number of communities around Wisconsin are already rising to the challenge. In Wisconsin Rapids, Marshfield, New London, Little Chute, Madison, Kaukauna, and Hales Corners, community-led projects are underway or about to begin. According to Paul Berkowitz of the Wisconsin Energy Conservation Corporation, the local utility is often involved, but as one of several equal partners with local government, organizations and businesses.

In Hales Corners, a village of 7,500 southwest of Milwaukee, the village's Ecology and Solid Waste Management Committee is leading the conservation project. Set to begin in Summer 1997, the project will provide energy assessments, primarily to single-family and multi-family homes. "We saw an opportunity to promote energy conservation as a way to help the environment, and as a way to help Hales Corners residents save money," says Public Works Director Ron Romeis.

Whether the motivation for the new generation of community-based projects is to help the environment, keep dollars in the community, community pride, or other reasons, the result is a contribution to reducing toxic air pollution.



Reliance on renewable, non-polluting sources of energy can also reduce toxics emissions. Windmills and solar collectors do not emit formaldehyde, dioxin or any other noxious chemical. Use of energy sources such as biomass (burning trees or crops specifically raised for energy) also reduces toxic air pollution, compared to coal.

D. Using Economic Forces To Clean Up, Rather Than Pollute, Our Air

Economists love to say that markets are more "efficient" at making decisions than government planners. What they mean is that most of our daily decisions are about values and tradeoffs between values, and that a free market enables people to "put their money where their mouth is" when it comes to values and tradeoffs. Government planners, on the other hand, can only make guesses about the public's true desires.

Under our current economic system, businesses and consumers often treat human health and environmental problems (which we might call "bads") as entirely separate from decisions about products and services (i.e., goods). The "bads" (e.g., cancer) often come much later than the goods, or they can be passed on to somebody else (perhaps someone "down river" or living near a landfill, or perhaps even future generations). On the other hand, government regulators are given the task of dealing with the "bads," and prescribing solutions on the public's behalf. The regulators, who often have minimal or no experience with a particular business or industry, tell companies what they must do to clean up pollution. The combination of a free market for goods and government planning for "bads" (such as pollution) almost guarantees that decisions will be controversial and expensive.

One possible alternative approach is to use market economy forces in a different way, one that considers environmental costs and forces people to consider those costs in their economic decisions. There are several mechanisms to do this. The most common are taxes and fees. If we

charge taxes or fees on bads, people will decide individually if the bads are worth the cost. Another way to work within the current economic system is the more grass roots approach of "green consumerism." This approach requires customers to clearly communicate to businesses that they care about the environment and will not buy products or services from companies that are environmentally irresponsible. People may also choose to tell businesses they are willing to pay extra (again, putting their money where their mouth is) for environmentally preferable goods. Green consumerism will inevitably create green businesses, because businesses need customers. It's that simple. And a final, less common economic approach that is growing in popularity is "cap and trade" schemes.

Let's take a closer look at how we might use some of these economic approaches to reduce toxic air pollution problems...

❖ *Toxics Trading – An Idea Whose Time Has Not Yet Come?*

Some policy makers are advocating the idea of emissions trading for toxic air pollution control. Emissions trading is a system whereby a cap is placed on the total amount of pollution the government will allow (e.g., 1 million pounds of pollutant X). Then, instead of requiring individual companies to meet individual limits, the government assigns each company pollution *allowances* (e.g., 10,000 pounds of pollutant X). Finally, companies are allowed to buy and sell all or part of their allowances as they see fit, but the overall cap must be honored. That is, if Company A can reduce their pollution very inexpensively, they will have leftover allowances that they can sell for profit. Company B, for which pollution reductions would be prohibitively expensive, can buy allowances from Company A and thereby meet their own quota. Each company gets to decide for itself what the most economical way is to handle their allowances.

In many of these "cap and trade" proposals, the government would "discount" trades (e.g., for every 10 pounds Company A reduces, they can only sell 8 pounds to Company B - the remaining 2 pounds would be "retired"). The government may also gradually reduce the cap over time. Both of these measures ensure that companies get the benefits of a trading system, but pollution decreases over time.

The bottom line of toxic air pollution trading schemes is that reductions of one pollutant in one place at one time could be substituted for required reductions at other places at other times (and some proposed schemes allow different pollutants to be substituted for one another!). Unfortunately, the underlying assumption of emission trading that all pollution is created equal – that changing the time, place, or even toxic chemical emitted will not have a negative impact on the environment – is not true.

Many toxics are of concern because they might cause cancer when people are exposed to the most minute quantities, or they have immediate detrimental effects when people are exposed to more than some minimum amount. Emitting several days worth of these toxics at once could pose a problem, and moving them from one neighborhood to another unfairly disadvantages or

harms one group of people over another. We do not have the skills or knowledge base to trade most toxics.

Mercury, however, is different because the problems it causes are long-term, not immediate, and regional, not local. Mercury problems arise in the Great Lakes from accumulation over decades, not days, so altering emission patterns by a year or two is unlikely to have a significant negative effect. Likewise, impacted water bodies can be hundreds of miles or more from emission sources, so moving emissions from Cedar Rapids to Chicago is also unlikely to have a negative effect, especially given that trading systems are accompanied by (and justify) significant reductions.

In fact, four Great Lakes states started a Mercury Reduction Initiative at the beginning of 1997. One component of this initiative may be mercury trading among large sources, including power plants and chemical manufacturers. If the states require significant reductions (e.g., greater than 50 percent reductions, per the targets identified in the Binational Virtual Elimination Strategy), then it might be a good idea to include trading. In this case, trading may ease the pain for some of the businesses involved, making them more likely to agree to reductions, and ultimately achieving greater total reductions at an earlier date.

The advantages to using emission trading for mercury are the following. First is that businesses that have the easiest time controlling pollution receive incentives to reduce as much as possible (instead of just reducing to the point where they comply with a standard). Second, businesses that have the hardest time controlling pollution have alternatives that result in pollution reduction, but at a lower cost than what they would have to pay to reduce their own pollution. And third, reducing the cost of controlling pollution ultimately reduces pollution, especially in the highly charged political world where required reductions are determined.

❖ ***Pollution Fees – Charging Polluters for the Damage They Do***

Pollution fees for toxic pollutants have also received some consideration in the Upper Midwest. With pollution fees, polluters are not only regulated as to the amount of toxics they emit, but they are also charged a dollar value that is linked to the amount (and potentially the toxicity) of their emissions. Fees are charged to fund the administrative costs of regulating air pollution, but in most states fees are only charged for a limited number of pollutants, which does not include many of the toxic air pollutants. Furthermore, the sums levied to date have usually been very small and have provided little if any incentive to clean up emissions.

Pollution fees place a direct cost on pollution, letting the market make decisions about good responses to the problem. Just like some of us choose cars based on their gas mileage – knowing that a better MPG rating leads to lower gas costs (and toxics emissions) over the life of the car – companies can be presented with choices that lead to lower costs if they control or eliminate use and emissions of toxics. "Monetizing" pollution is an economically efficient way to encourage pollution reductions, because money is what drives business and consumer decisions.

Continuing with the above reasoning, an example of this new approach might be to have vehicle registration surcharges or additional sales taxes for high-emission or low-mileage vehicles; alternatively, we could provide economic incentives for people to buy the best performing vehicles. In this way, we can give people choices, encourage good environmental decisions and possibly reduce pollution without telling people they must change their behavior.

For pollution fees to be effective, they must provide a significant disincentive for emitting toxics. According to public opinion research by the Minnesota Pollution Control Agency, fees should probably be set equal to the amount of environmental damage done by the emissions. (Even though exact numbers are hard to calculate, we can estimate the cost of the damage.) Minnesota has found that fees should be used to reduce deficits or reward businesses that have taken significant strides towards reducing pollution. They have found that people don't approve of using the fees to fund the expansion of state regulatory agencies. Evidence from the Minnesota work demonstrates that people, including the business community, support emission fees as long as they are efficient (they achieve the desired result at the lowest cost) and fair.[4]

E. Community Initiatives/Partnerships – Taking the Problem Into Our Own Hands

The final category of new approaches involves a range of activities that citizens or businesses can accomplish on their own - without government regulations. These approaches require citizens to be informed and active, sometimes applying pressure to influence businesses in their communities, but other times working in partnership with businesses to achieve lasting results that satisfy everyone's needs.

Public pressure against specific polluters has an excellent record of "encouraging" polluters to reduce or eliminate toxic pollution. Companies do not take well to being called dirty, irresponsible or brown, especially in these days of green marketing where they try to capitalize on the image of being good to the environment.

CITIZENS SHUT DOWN INCINERATOR

Community organizing was the key to the shut down of what activists call a "waste-to-dioxin" incinerator in 1994 in Columbus, Ohio. Like approximately 50 other municipal incinerators around the Great Lakes region, the Columbus incinerator burned waste to create electricity.

[4] Minnesota Pollution Control Agency, "The Feasibility of Using Fees to Reduce Toxic Air Emissions: A Follow-up Report", St. Paul, MN, June 1996.

In 1992, a bone tumor was removed from Sherry and Stan Loscko's young son. Shortly thereafter, a skin tumor appeared. At the same time, their daughter developed a tumor. Neighbors reported tumors, respiratory infections, cancers, allergies, seizures, and chronic fatigue.

Alarmed, the Losckos and their neighbor, Teresa Mills, searched for sources of toxics in their neighborhood. Their search led to the Columbus municipal solid waste incinerator, a city-owned facility that since 1983 had burned 3.4 million pounds of garbage a day to make electricity. The incinerator was located about a mile from the Loscko's neighborhood, two elementary schools, and other residential and agricultural areas. Test results in 1992 indicated that the incinerator was emitting some of the highest levels of dioxin ever recorded by the U.S. Environmental Protection Agency.

Dioxin – a chemical unknown in nature – is created when substances containing chlorine, such as plastics, are burned. Creation of dioxin is not only unintentional, it is unwanted. There are no uses for dioxin, and it is highly toxic. Known to cause cancer, dioxin is also suspected of causing brain dysfunction, depressing the immune system, and affecting development and growth. In high doses, it is fatal to animals.

Sources of air-borne dioxin include incinerators, cement kilns, copper smelters, coal combustion, and diesel exhaust. In addition to municipal incinerators like the one in Columbus, the Great Lakes region is home to dozens of hazardous waste and medical waste incinerators.

As it turned out, residents of a community even closer to the incinerator had notified Columbus health officials of similar health problems a couple of years earlier, but to no avail. In 1994, a grandmother from that area told the Columbus Guardian:

> "The third door, left, there's cancer. The fourth house, she has breast cancer...The house after that, there was a hysterectomy and cancer of the bowel. The next man has heart disease. The one after that had cancer of the bladder and had it removed... Then Mr. K had leukemia. In the next house, a young woman, not even 30, came to me because she had her thyroid removed. Across the street, H has a heart condition. J has emphysema. V has cancer on her face. Mr. F has a lung disease. His neighbor had his bladder and one kidney removed because of a tumor...Sometimes there's such a greasy, oily smell people call the police because they think there's a gas leak."

The Losckos and Teresa Mills went to work with Joan Seeman of the Franklin County Voters for Clean Air. They voiced their concerns to their elected officials. "Like any other grassroots group, we thought that if we took our problem to our elected officials someone would take care of it," says Mills. "We learned that no one was going to take care of our problems. We'd have to do it ourselves."

The Ohio environmental agency refused to monitor the air at the incinerator or to require changes to the plant to reduce dioxin. Even today, state and local government agencies do not acknowledge that the incinerator posed a health threat.

Next the activists called in the U.S. Environmental Protection Agency. They enlisted the help of an EPA whistleblower, who was instrumental in a September 1994 order by EPA's regional office in Chicago to clean up the incinerator.

When the Solid Waste Authority of Central Ohio considered the $65 million price tag for the pollution controls, it voted unanimously to close down the facility. Dioxin levels at a near-by elementary school dropped by 50 percent following the shut down.

Although the officially stated reasons for closing the Columbus incinerator were economic, it was community action that led to the EPA's mandate of pollution controls, initiating the shut down.

The Columbus activists' efforts affected communities beyond their own. "After we focused attention on dioxin levels at the Columbus incinerator, the U.S. Environmental Protection Agency ordered a number of incinerators using similar technology to test their emissions for dioxin," Mills explains. "In Ohio, the municipal incinerator in Akron shut down rather than conduct the test, and two others are about to close."

Her experience taught Mills much about the power of citizen activism. She says, "When we first started our group our motto was a quote from Margaret Mead. 'Never doubt that a small group of thoughtful, concerned citizens can change the world, indeed it's the only thing that ever has.' Today, four years later, I know that this quote is true. It did not take an army to stop the trash plant, it took concerned citizens, who were ignored by government, and despised by our target. But today the Columbus trash plant no longer spews black poison over the capital of the State of Ohio or the neighbors who fought so hard to close it."

Pressure or assistance from state regulators also can help reduce toxics. Illinois has been successful in reducing ethylene oxide pollution from hospitals. This toxic gas is used in medical equipment sterilizers and has been routinely dumped into the air. It is also very easy to destroy this chemical by a safe, clean, and relatively inexpensive process that converts ethylene oxide to harmless carbon dioxide and water. The toxic air pollution branch of the Illinois EPA simply went to hospitals, which are concerned about *reducing* sickness after all, and convinced the hospitals to reduce or eliminate ethylene oxide pollution.

As another example, the Wisconsin Fabricare Institute has voluntarily implemented an environmental stewardship program for dry cleaners.[5] The program certifies dry cleaners using better or best practices as a way of improving environmental performance and of giving consumers the choice of environmentally safer services. While it's hard for us as individuals to ask our local hospital to reduce ethylene oxide, each of us can easily ask our local dry cleaner to participate in the "Five Star Environmental Recognition Program for Drycleaners."

[5] This program is a cooperative effort of the Wisconsin Fabricare Institute, the Wisconsin Department of Natural Resources, the Wisconsin Department of Development, the University of Wisconsin-Extension Service, the Center for Neighborhood Technology, and Citizens for a Better Environment.

A strategy that results in corporations taking responsibility for their effects on communities is to sit down with them and voice concerns. As managers understand the impacts their decisions have on the lives of their neighbors, and can put a face on those impacts, they will be more willing to accommodate concerns of citizens. The chemical industry has developed a "Responsible Care" program, including citizen advisory panels that some chemical companies do in fact take seriously. The citizen panels advise the companies to take certain steps to improve corporate citizenship. Some companies even allow citizen advisory panels to write a statement for the corporate annual reports, documenting where the company has done well and where the company has failed to follow through on promises it has made.

Information can also be a powerful tool for toxics reductions. Many companies are required to file annual Toxics Release Inventory (TRI) reports, in which they quantify the amounts of toxic waste they create. Although this is a regulatory requirement, it often leads to very interesting voluntary pollution reductions. The reason? Embarrassment. TRI numbers are public, and often end up in newspapers or on the local news. Media reports often identify, for example, the 10 biggest sources of toxic pollution in a state, or the specific data for a local company. Companies are clearly motivated by a desire to avoid showing up in those top 10 lists. They also want to maintain good relations with their community. These factors have proven to be extremely effective in motivating companies to reduce their toxics emissions, over and above any government requirements. In some cases, TRI data makes companies realize for the first time just how much pollution they create, and how wasteful their processes may be. So the desire to improve company efficiency can also be a strong motivator.

LOCAL STORY: DRIVING A HARD BARGAIN

Over 8 billion pounds of toxic chemicals are *legally* dumped into the nation's air and water each year. Companies using certain quantities of toxics are required by law to report emissions of these toxics to land, air and water.

Making toxic pollution numbers public – initially required by federal law in 1986 and made stronger in 1990 – was a "stroke of genius," according to Citizens for a Better Environment (CBE) attorney Stefan Noe. He says that the simple reporting requirements have been instrumental in reducing reported annual releases of toxic chemicals across the nation by 43 percent since 1988. Noe says that often when companies inventory and report their emissions, they realize for the first time how many toxics they are using and emitting, and how easy and cost-effective it would be to reduce the use and release of toxics.

But not all companies comply with the reporting law. When they don't, CBE sometimes brings a lawsuit. More and more often, the result of those lawsuits is not only compliance with the reporting laws, but agreements by the companies to perform projects that reduce their emissions or make other environmental improvements.

CBE uses "Supplemental Environmental Projects" to make that happen. Agreements are made in the course of settling an environmental lawsuit where the polluter, in addition to coming into compliance with the law, voluntarily agrees to make environmental improvements in exchange for reduced penalties.

Since 1995, CBE has entered into 12 settlement agreements that included supplemental projects with companies that emit toxics in Illinois. More than a million and a half dollars have been devoted to specific programs that will significantly reduce the companies' use and release of toxic chemicals; $57,000 has been donated to state agencies to improve citizen access to information on toxic releases; and $22,000 has been donated to local environmental groups, including the McHenry County Defenders, Little Village Environmental Justice Project, and Lead Elimination Action Drive.

CBE has also helped facilitate Supplemental Environmental Projects for LTV Steel, and for Sherwin Williams, the paint manufacturer. In these cases, the U.S. government was suing the companies for violating pollution laws. CBE got community groups near the facilities involved. Together, they identified supplemental projects that would help local residents, and worked with federal enforcers to make them a reality.

LTV Steel agreed to a $1.8 million project that reduces pollutants from its coke ovens. Volatile organic compounds will be cut by a substantial 110,000 pounds annually and particulate pollution by 98 percent – from 1.8 million to 38,000 pounds annually. Sherwin Williams agreed to pay, in addition to millions in penalties, $950,000 to fund a "brownfield" revitalization project at an abandoned industrial site, and another $150,000 to restore a local wetland.

Marian Byrnes lives on Chicago's southeast side where both LTV and Sherwin Williams, along with many other industrial facilities, are located. As a member of the Southeast Environmental Task Force, she coordinated community groups in the area in developing lists of possible supplemental projects. "A pollution prevention project with LTV Steel was a top priority for the Southeast Environmental Task Force," she says. "We had been concerned for a whole year about visible black smoke coming from LTV's kilns as a result of the brick work deteriorating. EPA had reported that coke ovens are a major offender in excess cancer risk. The coke oven project reduces LTV's pollution by a significant chunk."

"CBE believes that the communities that have been adversely affected by the illegal pollution practices should receive some direct environmental benefit from a settlement, rather than simply having penalties paid to the federal treasury," says Noe.

Polluters can't be forced to participate in the supplemental projects. But Noe says that, even though the cost of the projects may exceed the reduction in the fine, reducing the use of toxic chemicals often translates into cost-savings for the company. Another motivation may be that the company wants to make amends to the community for its past polluting practices.

"We've found Supplemental Environmental Projects to be an effective way of making strides toward pollution prevention and reduction, as well as environmental justice," says Noe. "Organizations that bring environmental lawsuits that don't already use Supplemental Environmental Projects might want to consider their potential."

In addition to voicing concerns over everyday operations of neighborhood businesses, there is also a role for citizen groups in reviewing emergency procedures. Companies are supposed to develop plans for first preventing, and, second mitigating chemical spills, fires and other accidental pollution. Since these plans directly affect people in surrounding communities, asking to review such plans is a good way to engage management in our concerns. Community groups can stress the benefits of entirely removing toxic substances from the processes and plants in their neighborhood as an accident prevention step.

Companies involved in international trade may be more willing to consult community groups because of ISO 14000 requirements. ISO 14000 covers environmental management, and is one of a series of international business standards that affect companies involved in international trade. In meeting ISO 14000, companies are required to inform and involve stakeholders, which would include community groups.

A separate toxics reduction strategy would be community "clean sweeps" where government workers or volunteers go through neighborhoods or towns and collect household toxics for proper disposal. These toxics include unwanted paints, solvents, lawn chemicals and pesticides, and also old batteries and thermometers. In rural communities, these sweeps can also pick up unwanted and now banned pesticides and other farm chemicals.

Not all of the approaches listed above will work in every situation. However, each one has its benefits and may be useful in reducing the impact of toxic pollution on our kids, our senior citizens and our environment.

Many of these are more technical and require cooperation and conversations with government agencies or industry. But even then, it's very easy to request the public hearing to which we're entitled if the plant next door wants to make some equipment or operating changes. Making your concerns known (and maybe causing a delay) marks you as someone your local companies have to deal with.

Other alternative approaches to toxic pollution control are more personal – you can tune up your car, air up your tires and conserve energy. A list of things you can do in everyday life is included in the next chapter. Ultimately, a combination of the solutions describe in this chapter and the previous one will need to be put in place to solve the toxic air pollution problems we face today.

Chapter V – Policy Recommendations

The preceding material leaves us with certain knowledge that something must be done to reduce and eventually eliminate dumping of toxics into the air. The question then becomes, what can we do?

In addition to the steps we can take as individuals, there are a range of options both within and outside of current laws and rules. For instance, inside of current laws, the thresholds for regulation can be reduced (see the discussion of "major source thresholds" in Chapter IV), and we can focus additional attention and research on the more subtle health effects of pollution, such as birth defects and the combined effects of multiple pollutants. Outside of current rules, we can require companies to reduce the amount of mercury they spew into the air, even if they have never been required to control mercury emissions before.

Components of the solution to the toxic air pollution problem necessary for protecting our health and the health of the environment are:

- ☑ Requiring the steel industry to clean up the soot spewed from its smokestacks and to eliminate the leaks of toxic gases from coke ovens (the coal processing part of making steel);

- ☑ Shutting down or cleaning up ***all*** dirty incinerators, regardless of how large or small they are;

- ☑ Controlling toxic pollutants, soot- and smog-causing chemicals from electric power plants;

- ☑ Advocating for and using low emission, fuel efficient cars and public transportation;

- ☑ Collaborating with industry in our neighborhoods to let them know our concerns, to encourage them to clean up, and to ensure that they are taking appropriate steps to protect us from accidental and intentional pollution;

- ☑ Minimizing pesticide use, especially in suburban areas, and eliminating all unnecessary uses;

- ☑ Working for changes in the way industry operates its processes (e.g., demanding chlorine-free and recycled paper to reduce the environmental impacts of the paper industry, or requiring antiquated chlor-alkali producers to change to non-polluting processes – some producers of these chemical feedstocks still use a process that dumps a thousand pounds of mercury vapor into the air every year); and,

- ☑ Telling EPA to address urban air toxics, as required by the Clean Air Act, immediately.

In addition to contributing to the above public efforts, each of us as individuals can take another set of steps. Some of these are very simple, while others are more involved.

- ☑ To protect yourself and your kids, read fish advisories, cut out belly fat from your fish to remove cancer-causing PCBs. Unfortunately, this doesn't protect you from mercury which is in the whole fish, and, where fish is unsafe to eat, release your catch;

- ☑ To reduce the need for incinerators, reduce, reuse, and recycle as much as possible. If you must burn wastes, burn them dry to reduce pollution formation, especially soot. Don't ever burn plastic – burning plastics can create dioxin;

- ☑ To reduce toxic pollution from power plants, make an extra effort to conserve energy – turn off the lights. Demand that state and federal regulators clamp down on mercury dumped into the environment;

- ☑ Make an effort to drive less and to combine errands, especially on ozone alert days. Keep your car well tuned. If you are purchasing a new vehicle, choose one with low emissions and a high fuel efficiency rating;

- ☑ Communicate to the people you do business with both at home and on the job that the environment is very important to you. Demand recycled paper and chlorine-free paper. Encourage companies to participate in voluntary programs (such as the Wisconsin Five Star Environmental Recognition Program for Dry Cleaners) that reduce toxic air pollution risks. Ask local industries to set up Citizen Advisory Panels or some other forum where they can listen to your concerns and fix problems you identify;

- ☑ Minimize or eliminate your use of pesticides and herbicides, especially on lawns where they can hurt your kids and pets. If you must use pesticides, choose the least harmful alternative (the June 1997 issue of Consumer Reports can help). Advocate for advance notification and posting when pesticides are used in your community, with signs describing the actual toxic effects the chemicals can have on your family and your pets. Buy organic food if you can afford it.

❖ ***Incinerators***

Incinerators create dioxin, they dump mercury into the air, they contribute to the soot and smog problem, and they are unnecessary. Less polluting methods exist for dealing with garbage – at least landfilling doesn't spew all of the bound up pollutants into the air.

A program for dealing with incinerators has three components:

- ☑ Minimize waste and trash by recycling;

☑ Ban incinerators or at the very least demand stringent pollution controls on all incinerators of *all* sizes – allow no exemptions; and

☑ Construct *safe* landfills instead.

The first step in this, and any other, pollution reduction project is pollution prevention. In this case, that includes waste minimization and recycling. Elimination of plastics, especially chlorinated plastics, from the waste stream helps reduce the creation of dioxin; it also helps preserve landfill space. Metals such as mercury should also be removed from the waste stream.[1] Mercury boils at relatively low temperatures so if it is in trash, it will end up in the air if that trash is burned. Even if mercury is landfilled, there is still a chance that it will soak into groundwater or be transported into the air by trees planted on top of old landfills. Elimination of mercury from products is most preferred, but barring that, it should certainly be removed from common garbage.

Even doing what we can to minimize and recycle garbage, we should simply ban the use of incinerators as an option for solid waste disposal. Older incinerators and smaller incinerators especially are not adequately controlled. Even if we are not successful in shutting down incinerators, we can demand that ***every single incinerator in this country, without exception,*** meet the highest standard for pollution control, dioxin control, and capture of metals from their smokestacks. Some of the smallest incinerators are the worst offenders because they do not control their combustion chambers to reduce pollution. Exempting these small incinerators lets exactly the wrong people off the hook. Any incinerator that cannot meet stringent standards should be shut down, period.

Landfilling is probably the preferable means of dealing with garbage, though landfills should be constructed to the highest standards in order to provide a safe alternative. Strict standards in waste storage and transportation are also important.

❖ *Coal Power Plants*

Power plants are some of the largest, easiest to control sources of air pollution. Their sulfur dioxide emissions make up a large portion of the fine particle soot that is so deadly – causing the premature deaths of thousands of people per year.[2] Nitrogen oxide emissions from power plants

[1] Some of the nastiest toxics are elemental metals (e.g., lead, mercury, chromium, cadmium, arsenic, etc.) which literally cannot be destroyed by an incinerator or any other pollution control device. When you incinerate waste containing these metals, all you do is disperse the metals in the air, where they can do a lot of damage. Even if you capture the contaminants with air pollution control devices, all you do is collect them and send them to a landfill anyway.

[2] The exact number is hotly disputed, but is probably at least 15,000, based on research cited in support of the new federal soot standard.

are one primary cause of the harmful smog that keeps some kids inside instead of out playing with their friends. Mercury from power plants is contaminating our waters and makes fish unsafe to eat. Utilities spew other toxic air pollutants for which they are not regulated at all.

Cleaning up utilities is not easy. However, a very simple principle holds in these battles: *Require all plants to meet modern standards.* The Clean Air Act has stringent controls for new power plants, but very lax requirements for older ones. This policy was based on the expectation (and promise of the utility industry) that all those old plants would shut down and be replaced with newer, cleaner ones. Well, unfortunately for us, there are still a number of plants around built in the 1950s and 1960s.

Electric utilities have reaped the financial benefits of repairing old equipment instead of buying new, clean equipment. We deserve the clean air benefits that were supposed to arrive. The solution is simply to require all these old, dirty plants to meet modern standards, or to just shut down.

Energy conservation is also an important step in reducing pollution from power plants. This is the equivalent of the waste minimization step for incinerators, above – if we meet our needs for light, heat, and other services with less electricity, then that is pure pollution prevention. Conservation programs that result in "market transformation" – the elimination of inefficient products from stores and suppliers, which are replaced with only efficient products in the market – are especially effective.

On another front, we can ask regulators to change the requirements power plants must meet. Currently power plants may emit no more than a certain amount of pollution per pound of fuel burned (actually expressed as pounds of pollution per MMBtu of heat content). The problem is, there is no limit to the amount of fuel that may be burned, resulting in the possibility of an almost limitless amount of pollution.

When regulators set budgets for the amount of pollution allowed, there is then no legal way to increase pollution, even if more power plants are built. This simple change is a big shift for regulators, some of whom are already beginning to think this way, but it has very real benefits – we get a guarantee that the amount of pollution will not increase.

Finally, toxics from power plants must be addressed. The first step is require that utilities track and report the toxics they dump into the air. The EPA has just passed a rule requiring that utilities do this under the Toxics Release Inventory program. Once utilities make these reports, the information will be available from EPA and on the Internet at http://www.rtk.net.

Utilities often complain that toxics control is too expensive, or even impossible. However, technology does exist, whether that be further control of the soot particles that contain toxics, or injection of special charcoals into smokestacks to collect harmful vapors like mercury gas.

Where our health and our communities are at stake, the profits of big polluters should not get in the way of clean air.

And if it proves to be prohibitively expensive to control toxics from power plants, those utilities should not be let off the hook. They should instead be required to contribute money to cleaning up toxics from other nearby industries, ensuring that reductions occur. This approach has the added advantage of cleaning up the facilities where clean up is the cheapest, which is a useful fact in today's political and economic climate.

❖ ***Trucks, Buses and Cars***

Toxic air pollution from motor vehicles is a serious problem. No single step will solve the problem. Action is required on several different levels. We should build cleaner cars, use cleaner fuels, and provide incentives for the very best performance.

The Clean Air Act required EPA to recommend regulations for reducing toxic air pollution from motor vehicles by 1995. It's 1997, and nothing has been recommended. The very first step to cleaning up vehicle emissions should be to demand completion of this task by EPA. Some of the recommendations should be obvious.

American automobiles are not fuel efficient. Better mileage should be the number one design priority for automakers, because it leads to cleaner air and lower costs for consumers. Furthermore, vehicles should be designed to have the lowest possible air pollution impacts. EPA's recommendations should place highest priority on building clean, efficient cars. Vehicle owners should be required to pass periodic emission tests to ensure that cars and trucks stay clean as they age.

Toxic air pollution also varies depending on what fuel is used. EPA should pass much tougher standards for diesel fuels, which are among the dirtiest, and expand the "reformulated gas" program, which reduces toxic air pollution and the chemicals that create smog.

Gasoline evaporates very easily. Two additional steps are possible which would reduce evaporation of gasoline and thereby reduce our exposure to toxic air pollution. The first is to require vapor recovery when gas tanks are filled. This can be accomplished by equipment on gas station pumps (already required in cities with the dirtiest air) or equipment on vehicles. The Clean Air Act gave automakers nearly a decade to add this equipment to new vehicles, yet it isn't certain if they will meet their deadlines. EPA should push automakers to meet this deadline, or expand the gas station pump option to more cities. The second way to reduce evaporation of gasoline is to require automakers to design vapor-tight vehicles.

And finally, our society must do much more to reward those who do their part to clean the air. People who use alternative vehicles (e.g., solar cars) and public transportation should be rewarded, through tax incentives and greater public funding of mass transit. On the other hand,

we should discourage the worst polluters by charging fees or surtaxes on high-pollution, low-efficiency vehicles.

❖ ***Steel Mills and Coke Ovens***

The manufacture of steel and the production of the coke used in the steel making process is widely recognized as the largest single industrial source of known and suspected cancer-causing pollutants in the Great Lakes Basin. The carcinogens include benzene, cadmium, chromium, dioxin, hexachlorobenzene, lead, nickel, PCBs, styrene, and toluene, among others. Developmental effects are seen as a result of the chemicals from steel plants. Wildlife and ecosystems are also impacted.

As with power plants, one of the answers is to rebuild plants to meet modern standards. The amount of leaks from doors and lids of coke ovens is absolutely unnecessary. Although eliminating leaks will cost millions of dollars, that is the cost of environmental citizenship for these polluters. Benefits include a reduction in the thousands of cases of cancer attributable to steel in the Great Lakes Basin.

Another problem with the steel industry is the vast quantities of soot it puts out. For example, the USX plant in Gary, IN is responsible for about two-thirds (62%) of the soot upwind in Chicago! Soot controls on the plants would significantly reduce this problem, as well as the problem of toxics carried along with the soot.

The Clean Air Act itself has a loophole for the coke making part of steel making. Provided that coke producers (coke is a specially treated form of coal used in steel making) do a little bit better than the minimum standards set by EPA, they are exempted until the year 2020 from the more stringent standards that EPA will write after conducting a "residual risk" review.

We should insist that steel mills and coke producers minimize their emissions now, not 23 years from now. *Specifically, Congress should eliminate the delayed residual risk evaluation allowed by section 112(g)(8)(A) of the Clean Air Act.*

❖ ***Toxic Urban Air Pollution***

EPA is also required to develop a strategy for achieving a 75% reduction in cancers caused by urban air toxics. The agency is moving too slowly on this requirement, which is contained in section 112(k) of the Clean Air Act.

Right now, EPA is engaged in policy that promotes delays instead of policy that protects public health. In meeting the requirements of the Act, EPA has become bogged down in the science – just exactly which of the toxic air-pollutants listed in the act are the 30 worst? And just who are the polluters responsible for 90 percent of them? These are not easy questions to answer.

Fortunately, though, there is an alternative strategy that would let EPA jump to the critical part of the analysis – how do we reduce cancer by 75 percent? Instead of limiting themselves to just the top thirty, they can instead use the "not less than" part of the law, and pick all known or suspected carcinogens, which number more than thirty. Next, EPA can focus on every source category known to emit these selected chemicals (or EPA can look at the source categories responsible for 90 percent of the pollution, the minimum required by the Act).

In less than a month, EPA could short circuit the review that has taken seven years to date, and will undoubtedly take quite a few more years to complete. After taking this across the board approach, EPA could turn attention to the critical task – figuring out ways of actually reducing cancer risk.

The message to EPA should be: *In developing the Urban Air Toxics program, don't worry about the fine details of cancer-causing chemicals. We already know enough to target the right pollution and right polluters. Address the cancer problem now!*

❖ ***Working Together***

When they asked Willie Sutton why he robbed banks, he said because that's where they keep the money. The same concept applies to collaboration. We should be more willing to cooperate and collaborate with polluters, because they ultimately decide what gets done and what gets ignored.

Collaboration doesn't mean surrendering our principles. When working with companies, we must be tough but fair. We must do our best to be good neighbors, then demand the same from industry. If we do it right, there's no better or faster way to get results.

The most important part of forming partnerships with industry is to always be honest, and tell them how you feel. We have to make sure they understand how important health and environmental issues are to us. We should be willing to attend meetings and public hearings, and if there aren't any scheduled, we should ask for them.

Neighborhoods and community groups should organize and work collectively. They should ask local companies and government agencies for Toxics Release Inventory data, which by law must be publicly available. They should also ask to see plans for chemical emergencies, and if there are no plans, offer to help draft them. Community groups should encourage companies to start Citizen Advisory Panels, and send representatives to participate on those panels.

❖ ***Pesticides***

Pesticides – chemicals that are specifically designed to kill – are applied far too widely in populated places. Use per acre is higher in the suburbs than it is on farms. Two or three specific steps can dramatically reduce the threat from these chemicals.

Local or even state ordinances requiring that spraying be posted would help us keep away from treated areas. Posting requirements may result in less spraying, too, as people come to understand that the chemicals are truly harmful. This positive result can be bolstered if the signs describe exactly what the chemicals can do to you.

Because of their potential harmful effects, some pesticides should be completely banned near public places such as schools, parks, hospitals, nursing homes, day care centers. Nobody should be involuntarily exposed to these dangerous chemicals, particularly our most vulnerable citizens.

A further positive policy step would be to outlaw production for export of chemicals that are illegal in the U.S. For instance, we still see a hazardous pesticide called chlordane being added to the Great Lakes even though it is no longer used in this country. The chlordane is coming from as far away as Mexico! And the infamous DDT is still the pesticide of choice in many developing nations. We could reduce the amount of chlordane and DDT in the Great Lakes if we simply banned U.S. companies from producing and exporting these chemicals. This same principle holds for other banned pesticides.

With respect to pesticides in our food, certain steps can help protect us from eating too many pesticides. While washing fruits and vegetables is a start, that only removes a fifth of the toxins. A healthier alternative is to buy and promote organic food. Buying organic and telling stores and supermarkets that we want healthier food both protects us and helps reduce overall pesticide use. However, since it isn't always possible for everyone to buy organic produce, we can also substitute safer fruits and vegetables for ones that contain high amounts of pesticides. The Shopping List below suggests good alternatives for the more contaminated fruits and vegetables. ***In short, pesticide use should be minimized and, where possible, eliminated, we should be notified of pesticide use in the vicinity of our homes and schools, and, as a protective measure, we should substitute low-pesticide foods for high-pesticide foods.***

The Shopping List: Eat Healthy and Reduce Risks from Pesticides

Rank	Instead of these...	Try These... All of these alternatives are a good source* of most or all of the principal vitamins and nutrients in the contaminated food.
1	Strawberries	Blueberries, raspberries, blackberries, oranges, grapefruit, cantaloupe, kiwis, or watermelon.
2 (tie)	Bell peppers:	
	Green peppers	Green peas, broccoli, or Romaine lettuce.
	Red peppers	Romaine lettuce, carrots, broccoli, Brussels sprouts, asparagus, or tomatoes.
2 (tie)	Spinach	Broccoli, Brussels sprouts, Romaine lettuce, or asparagus.
4	Cherries (U.S.)	Oranges, blueberries, raspberries, blackberries, grapefruit, cantaloupe, or kiwis.
5	Peaches	Nectarines, U.S. cantaloupe, watermelon, tangerines, oranges, or red or pink grapefruit.
6	Cantaloupe (Mexican)	Buy U.S. cantaloupe in season (May-December), or watermelon.
7	Celery	Carrots, Romaine lettuce, broccoli, or radishes.
8	Apples	Pears, oranges, grapefruit, cantaloupe, kiwis, watermelon, nectarines, bananas, tangerines, or virtually any fruit not on the list of the most contaminated foods.
9	Apricots	Nectarines, U.S. cantaloupe, watermelon, tangerines, oranges, red or pink grapefruit, or watermelon.
10	Green beans	Green peas, broccoli, cauliflower, Brussels sprouts, potatoes, or asparagus.
11	Grapes (Chilean)	Buy U.S. grapes in season (May-December).
12	Cucumbers	Carrots, Romaine lettuce, broccoli, radishes, or virtually any vegetable not on the list of the most contaminated foods.
		*Includes 10% or more of the daily value of at least one of the vitamins in the contaminated food.

Sources: Environmental Working Group, compiled from FDA and EPA data; Center for Science in the Public Interest. Nutrition Action Health Letter, January-February 1995, October 1994, May 1992, December 1991.

For more information, see Environmental Working Group's full report, titled "A Shopper's Guide to Pesticides in Produce", available on the World Wide Web at <http://www.ewg.org>, or contact EWG directly.

❖ *Conclusions*

As discussed throughout this report, toxics dumped into the air have a concrete, detrimental impact on our communities. Polluters whose bottom line is the bottom line spew millions and millions of pounds of toxic chemicals into the air every year. We need to tell them that our lives are more important than their profits.

While there are few "smoking guns" from toxic air pollution, the cancer, birth defect, and developmental risks are too serious to be ignored. Current efforts to eliminate toxic chemicals dumped into the air are not moving forward fast enough. In order to protect our families, our children, and our seniors in this country, much more has to be done.

- ☑ Dangerous, dioxin-emitting incinerators of *all* sizes should be closed or, at the very least, controlled.
- ☑ Power plants should meet modern standards or be shut down.
- ☑ New vehicles should have lower toxic emissions and should get better gas mileage.
- ☑ Steel mills should clean up, and coke ovens should be required to meet strict standards now, not in 2020.
- ☑ We should work directly with industry in our neighborhoods to develop ways of reducing their toxic impact on our lives.
- ☑ We should use fewer pesticides and require that we be notified when our neighbors use them.
- ☑ EPA should focus on reducing cancer from the known and suspected carcinogens present in the air in our cities. Instead of wasting time, energy and money on deciding exactly which dangerous, cancer-causing chemicals are the most harmful, they should focus on eliminating *all* of these chemicals from our air.

These seven steps will not guarantee 100% safety, but they are important and necessary steps in cleaning up America's air for our families and our future.

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APPENDIX A

Pollutant	Examples of Uses and Emission Sources
Metals	
Arsenic	Used in metal alloys and semiconductors. Also a byproduct of coal and oil combustion.
Cadmium	Used in metal coatings and alloys, fire protection systems, batteries, power transmission wires, pigments and enamels, fungicides, electrodes, photography and lithography, and solder. Often emitted during combustion of fossil fuels and waste oil and during mining and smelting.
Chromium	Used in metal alloys and stainless steel, electroplating, protective coatings, pigments, and as an anti-corrosion additive in cooling tower water. Also a byproduct of coal and oil combustion.
Lead	Historically used in gasoline and paint additives, batteries, solder, ammunition, radiation shielding, cable coverings, and metal alloys. A byproduct of many combustion and manufacturing processes and from motor vehicles. Use in paint additives restricted in U.S. in 1971. U.S. restrictions on use in gasoline additives began in 1973 and have continued through the present.
Mercury	Used in thermometers, electrical equipment (including batteries, switches, and lamps), industrial control instruments, dental fillings, and as a cathode in chlor-alkali production. Also a byproduct of many combustion, manufacturing and natural processes. Banned as paint additive in U.S. in early 1990's. All intentional uses except lighting have alternatives.
Chlorinated Organics	
Chloroform	Used in plastics production, solvents, fumigants, insecticides, and chemical processes. Also emitted from chlorination and wastewater.
Dioxin	Byproduct of combustion of organic material containing chlorine and of chlorine bleaching in pulp and paper manufacturing. Also a contaminant in some pesticides.
Hexachlorobenzene	Wood preservative and fungicide used as a seed protectant until 1985. Byproduct of chlorinated compound and pesticide manufacturing. Also a byproduct of combustion of chlorine-containing materials. Present as a contaminant in some pesticides.
Methylene Chloride	Used in paint removers, solvents degreasing, solvent extraction, plastics processing, aerosol propellants, and as a foam blowing agent.
PCBs	Industrial chemicals used widely in the U.S. from 1929-78 for many purposes, such as coolants and lubricants and in electrical equipment such as transformers and capacitors. In the U.S., uses significantly restricted in 1979. Still used for some purposes, still present in certain electrical equipment throughout U.S., and still emitted from oil combustion and incinerators.
Perchloroethylene	Used primarily in solvents, dry cleaning processes, metal parts cleaning, and heat exchange.
Trichloroethylene	Used in metal degreasing, dyeing, dry cleaning, fumigants, heat exchange, electronic parts cleaning, paints and adhesives, textile processing, chemical processes, and as an extraction solvent.
Vinyl Chloride	Used in polyvinyl chloride (PVC) manufacturing, plastic adhesives, and chemical processes.
PAH/POM	**Byproducts of incomplete burning of fossil fuels and of plant and animal biomass (e.g., forest fires). Also, byproducts from steel and coke production and garbage incineration.**

Coke oven emissions	Byproduct from the production of coke for steel manufacturing.
Pesticides	
Chlordane	Insecticide used widely in the 70s and 80s. All U.S. uses except termite control canceled in 1978; use for termite control voluntarily suspended 1988. Use of existing stocks permitted.
DDT/DDE	Insecticide used widely in U.S. 1946-72, when significantly restricted. Still used in other countries. Used in U.S. for agriculture and public health only with special permits.
Dieldrin	Insecticide used widely after introduction in late 40s. Used in U.S. for termite control from 1972 until registration voluntarily suspended in 1987.
Lindane and other hexachlorocyclohexanes	Lindane is an insecticide used on food crops and forests and to control lice and scabies in livestock and humans. Currently used primarily in China, India and Mexico. U.S. production stopped in 1977, use restricted in 1983; however, many uses are still registered.
Toxaphene	Insecticide used widely on cotton in the southern U.S. until the late 1970s. Most U.S. uses banned in 1982; remaining uses canceled in 1987.
Other Toxic Air Pollutants	
Acrolein	Used in chemical processes, polyester and polyurethane manufacturing, pharmaceuticals, herbicides, and solvents. Also a combustion byproduct.
Asbestos	Natural mineral used for insulation, fireproofing, brake linings, cement reinforcement, and roofing materials.
Benzene	Used in chemical processes and as a solvent. Component of petroleum products. Byproduct of gasoline evaporation and combustion.
1,3-Butadiene	Used in synthetic resins and chemical processes. Also a combustion byproduct.
Carbon Tetrachloride	Used in refrigeration, fumigation, solvents, metal degreasing, chemical processes, and semiconductors.
Ethylene Oxide	Used as a sterilant and fumigant, and in chemical processes, fungicides, and rocket propellants.
Formaldehyde	Used in coatings, adhesives, chemical processes, plywood and particle board, foam insulation, fungicides, fertilizers, sterilants, preservatives and embalming fluids, synthetic resins, disinfectants, and as a corrosion inhibitor. Also a byproduct of virtually any combustion or incineration process.
Styrene	Used in polystyrene and other synthetic resin manufacturing, protective coatings, and chemical processes.
Toluene	Used in chemical processes, explosives (TNT), and as a solvent in paints, coatings, gums, resins, oils, rubber, and adhesives. Also a component of gasoline.
Xylene	Used in protective coatings, chemical processes, insecticides, pharmaceuticals, dyes, resin manufacturing, and as a solvent in resins, lacquers, enamels, and rubber cements. Also a component of gasoline.

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APPENDIX B

TOXIC POLLUTION=HUMAN SUFFERING

Human Health Dangers Of Airborne Toxics That Pollute Our Great Waters

Pollutant	*Cancer*	*Reproductive/ Developmental*	*Neurological/ Behavioral*	*Immuno-logical*	*Endocrine*	*Other Noncancer*
Cadmium and compounds	Probable	Yes	Yes	Yes		Respiratory and kidney toxicity
Chlordane	Probable	Yes	Yes	Yes	Yes	Liver toxicity
DDT/DDE	Probable	Yes	Yes	Yes	Yes	Liver toxicity
Dieldrin	Probable	Yes	Yes	Yes	Yes	Liver toxicity
Dioxin	Probable	Yes	Yes	Yes	Yes	Integument toxicity
Furans	Not classi-fiable	Yes		Yes	Yes	Liver toxicity
Hexachloro-benzene	Probable	Yes	Yes	Yes	Yes	Liver toxicity
Hexachlorocyclo-hexane (HCH)	Probable					Kidney and liver toxicity
Lead and compounds	Probable	Yes	Yes	Yes	Yes	Kidney toxicity
Lindane	Probable	Yes	Yes	Yes		Kidney and liver toxicity
Mercury and compounds		Yes	Yes	Yes	Yes	Kidney toxicity
PCBs	Probable	Yes	Yes	Yes	Yes	Liver toxicity, respiratory & cardiovascular
POM	Probable	Yes		Yes		Blood cell toxicity
Toxaphene	Probable	Yes	Yes	Yes	Yes	Cardiovascular effects; liver toxicity

Source: U.S. EPA "Potential Human Health Effects Associated with Pollutants of Concern" in Great Waters, 1994

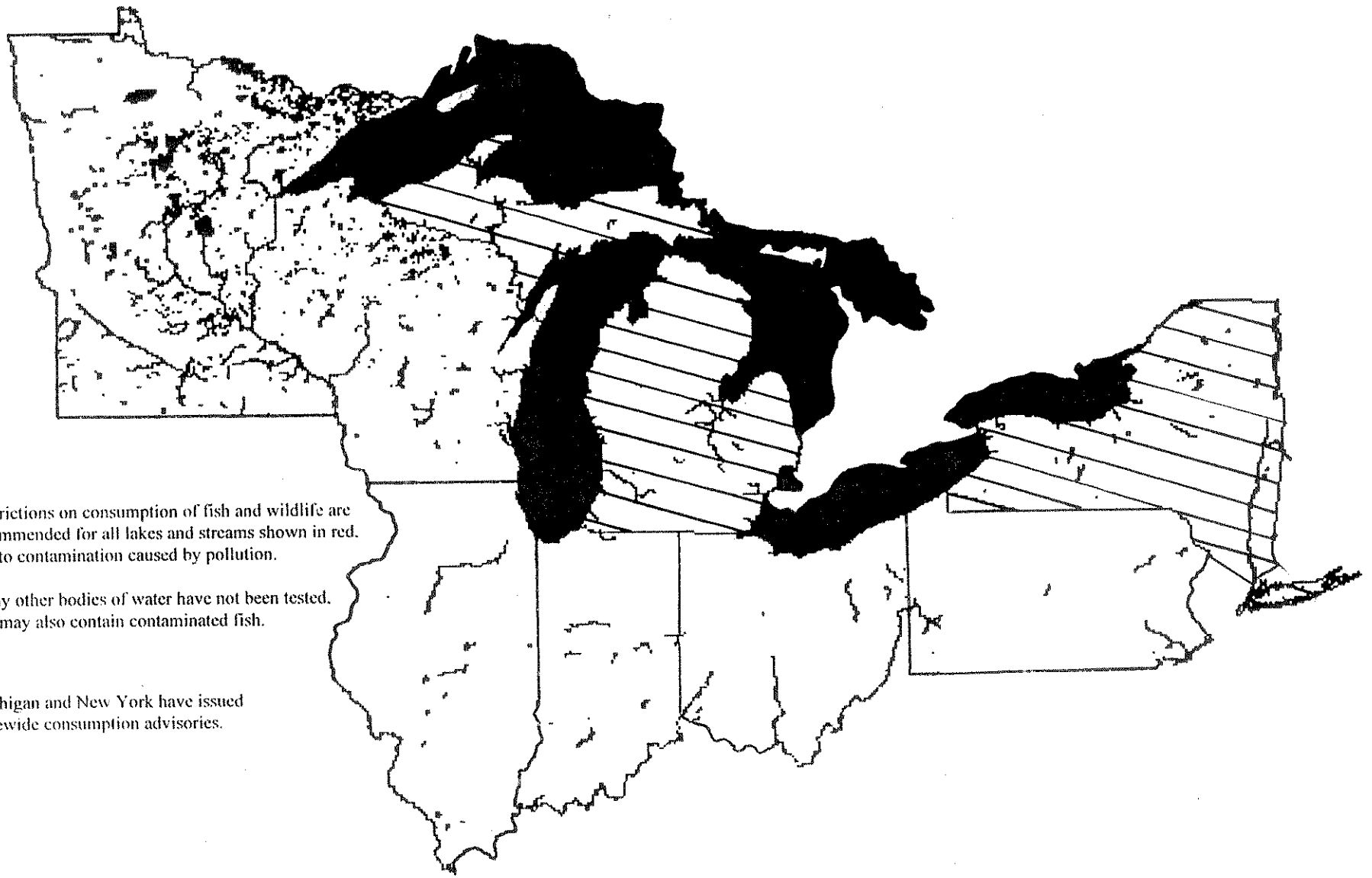
Table 2. HEALTH EFFECTS OBSERVED IN GREAT LAKES ANIMALS.

SPECIES	Population decline	Reproductive effects	Eggshell thinning	Generational effects	Deformities	Organ damage	Behavioral changes	Hormonal changes	"Wasting"—metabolic change	Immune suppression	Tumors
Bald Eagle	●	●	●	●	●		●		●		
Beluga whale	●	●	n/a		●	●		●		●	●
Black-crowned night heron	●	●	●		●				●		
Caspian tern	●	●		●	●	●	●		●		
Chinook-coho salmon		●	n/a			●		●			●
Common tern	●	●				●	●		●	●	
Double-crested cormorant	●	●	●	●	●	●	●		●		
Forster's tern	●	●	●	●	●	●	●		●		
Herring gull	●	●	●	●	●	●	●	●	●	●	
Lake trout	●	●	n/a	●		●	●		●		
Mink	●	●	n/a	●		●			●		
Osprey	●	●	●								
Ring-billed gull	●	●	●		●	●			●	●	
Snapping turtle		●			●						

Note: Cells not marked do not necessarily mean there is no effect, only that no citation in scientific literature was found.

Sources: The Conservation Foundation and *Chemical and Energy News*

Fish and Wildlife Consumption Advisories in the Great Lakes Region



■ Restrictions on consumption of fish and wildlife are recommended for all lakes and streams shown in red, due to contamination caused by pollution.

Many other bodies of water have not been tested, and may also contain contaminated fish.

▨ Michigan and New York have issued statewide consumption advisories.

From USEPA, "Update: 1995 National Listing of Fish and Wildlife Consumption Advisories", EPA-823-F-96-006, Washington, DC, June 1996a.

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STATEMENT IN SUPPORT OF SB 415
A Bill to Extend the Medical Waste Incinerator Moratorium
Presented on February 11, 1998 Before
The Senate Committee on Agriculture and Environmental Resources

The John Muir Chapter of the Sierra Club with approximately 10,000 members in Wisconsin supports SB 415 extending WI's medical waste incinerator moratorium until the year 2002. The Sierra Club has supported past efforts by the Legislature to introduce the medical industry in Wisconsin to new medical waste management policies and methods that reduce the industry's reliance on incineration. The Club has joined the national campaign *Health Care Without Harm* to develop environmentally responsible health care.

The Legislature needs to extend the moratorium at this time for two main reasons. The first is to provide an opportunity for the existing policies and efforts to source separate materials, to reduce the amount of infectious waste, and to control toxic emissions from incinerators to run their course. As recently as the fall of 1997, the last group of medical facilities generating medical waste were required to implement medical waste reduction policies. The impact of these efforts will not be complete for at least a few years.

The second reason to extend the moratorium at this time is the focus and investment in policies and programs to control mercury emissions and pollution. This simple date change is a significant feather in the cap of the state and its ability to manage one of the top three sources of mercury emissions across the country - medical waste incinerators. As recently as this morning, the DNR presented a list of 33 programs and policies targeting mercury for 1997-1999.

The Sierra Club report, "Danger in the Air Hope on the Horizon" released in July 1997 firmly commits the Club to working on a variety of toxic emission sources including medical waste incinerators. I would like to draw your attention to the pie charts on pages 12 and 13 of the report which indicates the importance of medical waste incineration as a source of dioxins and furans, PCBs, mercury and chromium.

I want to thank the Committee and the Committee chair for scheduling SB 415 promptly and urge the Committee to take immediate action in support of extending the medical waste incinerator moratorium date.

1997 SENATE BILL 415

Testimony to the Committee on Agriculture and Environmental Resources
Senator Alice Clausing, Chairperson

by

Bill Baumann
Combustion Process Section Chief
Bureau of Air Management
Wisconsin Department of Natural Resources

February 11, 1998

Senate Bill 415 amends 285.55(7) of the statutes, extending the applicability of this section from July 1, 1998 until July 1, 2002. This essentially extends the current medical waste incinerator moratorium in Wisconsin for 4 years. The Wisconsin Department of Natural Resources does not believe this will pose any significant problems for hospitals and related facilities in dealing with medical wastes, and that alternatives exist for dealing with these wastes.

A study that examined the capacity of medical waste incinerators in Wisconsin was done in 1991 by the Department of Natural Resources. Information in that study indicated that adequate capacity was present at existing incinerators to deal with medical wastes generated in Wisconsin. The capacity issue has not been studied further since that time. However, we have not had contact from facilities seeking permits, in anticipation of the moratorium ending, to build any additional incinerator facilities or capacity. Only 5 incinerator facilities remain in Wisconsin. We view this as an indication of the adequacy of existing capacity.

In a related matter, US EPA issued final standards this past fall for regulation of hospital/medical/infectious waste incinerators. These regulations included guidelines for emissions from existing facilities and new source performance standards for facilities constructed after June of 1996. In a fact sheet prepared on the regulations, EPA indicates that 50% to 80% of smaller medical waste incinerators nationwide may discontinue operation as a result of the more stringent new standards. However, EPA also indicates that hospital/medical/infectious waste will be adequately handled either at remaining, larger commercial incinerator facilities, or else through the use of other currently available technologies such as microwave irradiation, steam autoclaving, or chemical or thermal treatment.

In conclusion, we believe that there is adequate capacity to deal with medical waste in Wisconsin. This capacity takes two forms, either existing incineration capacity, or availability of alternate technologies for dealing with this waste stream.