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Testimony of Walter L.T. Hang,  
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Before a Joint Hearing of the  
Assembly Committee on Environmental Conservation  
and Subcommittee on Toxic and Hazardous Substances  
and  
the Senate Committee on Conservation and Recreation  
and Subcommittee on Toxic Substances and Chemical Wastes  
of the  
State of New York  
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Greetings. My name is Walter Hang. I am a staff scientist with the New York Public Interest Research Group, Inc. (NYPIRG) and co-author of the study that is the subject of today's hearings. Thank you for inviting me to present testimony on the findings of my research. I am heartened that the Legislature is addressing the toxic chemical pollution problems of the Niagara River.

As you know, NYPIRG is New York's largest private research and advocacy organization. More than 120 professional staff work with over 150,000 members in 31 offices located from Western New York to Eastern Long Island. Working together we conduct independent, non-biased research and shape public policy. Environmental preservation, consumer protection, energy, government accountability, political reform and social justice are NYPIRG's principal concerns.

In 1976 concerns about the effects of toxic chemicals in the environment prompted NYPIRG to establish a Toxics Project. Since then scientists trained in various disciplines have undertaken three major studies of chemical pollution. Staff have also served as technical consultants to the Environmental Protection Agency's (EPA) People and Toxics program and aided communities with environmental problems. For its work, the Project has been awarded a regional certificate of merit appreciation by the EPA. The Toxics Project's work has also been cited by the President's Council on Environmental Quality in special studies and its annual report for the last two years.

I have coordinated the activities of the Toxics Project since 1977. I have also co-authored three major studies in all: The Ravaged River: Toxic Chemicals in the Niagara, Toxics on Tap: Chemical Contamination of Long Island Drinking Water Supplies, and Troubled Waters: Toxic Chemicals in the Hudson River. During the last five years I have testified numerous times before the Legislature on the findings of these studies and on other environmental concerns.

Let me outline very briefly what my concerns are today. All of the Toxics Project's research examines the environmental and public health implications of chemical pollutants. However, there are now more reasons than ever before to probe the influence on environmental quality on human health. Until recently, I would have predicted that one out of every four persons in this room would be expected to contract cancer during their lifetimes and that approximately two-thirds of those afflicted would ultimately succumb to the disease. In recent weeks, however, new statistics have been released. Now, one out of every three Americans can expect to get cancer. This startling rise in cancer incidence is paralleled by a similar rise in cancer mortality rates. According to the President's Council on Environmental Quality, overall, age-adjusted death rates from cancers rose steadily between 1910 and 1940. The result was a 24 percent increase for the 30 year period or a 7.4 percent increase per decade. Between 1930 and 1970 cancer mortality rates increased at a slower rate, approximately 2.6 percent per decade. This same rate characterized cancer mortality in the 1960's. Between 1969 and 1976, however, data generated indicates that the mortality rate during the last decade for which data is available rose 5.6 percent, possibly indicating an acceleration in cancer rates.

The scientific community has established that the majority of human cancers are environmentally induced. Many factors play a role in causing cancer, including genetic background, chemical carcinogens (cancer-causing agents), radioactivity, diet, personal habits, such as smoking, and consumption of drugs and alcohol, and, possibly, viruses.

Until recently, it was believed that human exposure to carcinogens was relatively limited. Now it is increasingly apparent that exposure to potentially cancer-causing substances occurs all too frequently. Scientists have identified potentially cancer-causing substances in air, food, water, consumer products and occupational settings. As a result, there has been increased emphasis on the identification and prevention of unnecessary toxic exposures.

Five years ago, Mirex pollution in Lake Ontario and PCBs (polychlorinated biphenyls) contamination of the Hudson River were newly discovered problems. Since then, however, New York State's environment has been found to be polluted with toxic chemicals on a vast scale. More than 800 known or suspected hazardous waste dump sites have been identified. Virtually none of these is properly designed, constructed or maintained to provide secure storage of the wastes that they contain. Groundwater contamination caused by industrial discharges and improperly disposed of wastes has been discovered across the state. On Long Island alone, more than 200 wells have been shut down due to unacceptably high concentrations of toxic pollutants. These findings support the general conclusion that decades of intensive manufacturing activities in the Empire State have left an awesome legacy of chemical waste.

This growing awareness of the magnitude of the pollution problem comes at a time when we are also recognizing signs of a cancer epidemic. A study by the National Cancer Institute entitled: Atlas of Cancer Mortality for U.S. Counties 1950-1969, published in 1975, indicated that the industrialized Northeast had the greatest concentration of high cancer rates in the country, with clusters of high cancer mortality located in the manufacturing centers of the Great Lakes region, the southern petrochemical center of southern Louisiana and a variety of other locations throughout the country. New Jersey ranked number one overall for cancer mortality, with New York a close second. In fact, each of New York's industrialized areas was found to have overall, age-adjusted cancer mortality rates for white males ranked in the top ten percent of the national rank.

Nowhere in New York is the problem more striking than in the Niagara Frontier. Western New York generates almost half of the State's hazardous wastes. The largest steel, chemical and manufacturing facilities in New York are located in the heavily industrialized corridor between Buffalo and Niagara Falls. As the Ravaged River documents, permits issued to industrial and municipal wastewater dischargers fail to provide comprehensive regulation of toxic pollutants, such as spent oils, solvents, greases, and other manufacturing residues. More than 250 known or suspected hazardous waste dumps exist in Erie and Niagara Counties. Many of these are abandoned sites that have the potential to cause groundwater contamination that could ultimately find its way into the Niagara. In short, toxic pollution is not properly controlled. This may be one of the main causes of western New York's high cancer rates, and that is why NYPIRG undertook the Ravaged River study.

The findings of our study are straightforward. Let me summarize them for you. We examined the State Pollutant Discharge Elimination System (SPDES) permit program, which was originally designed to improve the aesthetic quality of the environment by controlling discharges of biodegradable contaminants, notably sewage. In many ways this program has been successful. The Niagara's waters look much improved. Sadly, they are more intensely contaminated with toxics than ever before. In recent years, toxic chemicals have developed into a major concern. But the system is still in the process of responding to this aspect of water pollution. To date, inadequate resources and shifting institutional responsibilities have precluded the effective control of toxics. Standards have not been set. Monitoring data is limited. None of the SPDES permits we examined provide comprehensive control of the broad spectrum of toxic chemicals known or suspected to be present in the wastestreams of industries that discharge into the Niagara. In many cases even identified releases of contamination were improperly regulated. For example, Hooker Chemical Corporation, through its own study, has been found to discharge up to approximately 350 pounds per day of various halogenated organic compounds. This company's discharge permit exemplifies the limitations of the entire SPDES system. Large amounts of toxic chemicals are known to be present in the facility's effluent. Yet its SPDES permit neither requires comprehensive monitoring of the discharge nor sets strict standards to control the release of those or other toxic pollutants. The Hooker facility is known to have

manufactured hundreds of different chemicals and generated hundreds of thousands of tons of hazardous waste. Yet, less than 20 compounds have been monitored for in the plant's wastewaters. As a result, the fate of the remaining contaminants is unknown. Though more than 75,000 tons of chemical waste are known to be buried in inappropriately designed, constructed and maintained dumpsites, no action has been required to make those disposal areas secure. Consequently, extremely deadly chemicals pour into the facility's severely deteriorated sewer system and, subsequently, into the Niagara River. This uncontrolled discharge, in effect, receives the blessings of the State and federal environmental authorities.

Let me clear up some misunderstandings concerning the permit review section of the report. Some questions have been raised that industries included in our study are either shut down or discharge solely into municipal wastewater collection systems. During the three-year course of the study, several dischargers shut down or connected to municipal systems. Just because an industry is shut down, however, does not necessarily mean that it has ceased discharging toxics. Stauffer Chemical Company, for example, shut down in 1978, as our report indicates. But the company has renewed its SPDES permit and continues to discharge up to approximately 10,000 gallons per day of stormwater runoff contaminated with the toxic solvent carbon tetrachloride. Other firms that were long in the process of diverting their wastestreams into municipal collection systems, evidently went on-line in the final days of research for our study. A few connected up after our study went to press. Even municipal authorities we consulted were sometimes unable to give an up-to-the-moment report of the status of these dischargers.

Concerns have also been raised about a few standard industrial classification (SIC) codes that may not be correct. This points out one of the main problems uncovered by our report. We took SIC codes and much of the industrial production information contained in our study straight off of permit applications and Industrial Chemical Survey (ICS) responses filed by the companies. Much of this information is never cross-checked and evidently may not be totally accurate. In the recommendations of our report we urged the authorities to address this concern.

Municipal wastewater treatment plants were found to be inadequately regulated real or suspected sources of toxic contamination. Facilities in Western New York, like SPDES-regulated industrial dischargers, are not strictly monitored or required to provide comprehensive control of toxic chemicals. Yet these facilities are either not designed to be able to provide adequate treatment of toxics or are not operating properly to provide such treatment at the present time. Despite this awareness, strict pretreatment programs which are essential have not been instituted. As in the case of the permit program, toxic pollutants in municipal discharges are a relatively recent concern and have not been properly addressed so far.

For example, we monitored the City of Niagara Falls wastewater treatment plant's discharge, and identified the presence of 40 "priority pollutants." This analysis was performed by an Environmental Protection Agency (EPA) approved laboratory according to EPA protocol for "priority pollutant" analysis. Soon after our report was released, Canadian authorities released data identifying the presence of 41 "priority pollutants" in the same facility's discharge.

Hazardous waste dump sites throughout the Niagara Frontier pose potentially catastrophic dangers to the environment and public health. Yet, a comprehensive program has not been instituted to manage these problems. It has been nearly three years since the Interagency Task Force on Hazardous Wastes identified the presence of more than 200 waste dumps in Erie and Niagara Counties. Unfortunately, site-specific studies have not been performed on these sites. Nor has remedial action been taken to make these sites secure.

Immediate action is needed to attend to these tasks. In the absence of an adequate federal superfund, a state superfund should be established to tax industries based on the amount of hazardous waste they generate. This money should then be spent for the cleanup of abandoned sites.

Priorities will be difficult to set based on the limited amount of information available for the majority of the sites. Therefore, a Community Right-to-Know law should be established. This would set up a statewide Interagency Task Force on Hazardous Waste to gather information on the kinds and amounts of hazardous wastes disposed of by industries in the past. Knowing where most of the wastes are located would allow the agencies to maximize the effective use of their limited analytical resources.

The three inadequately regulated sources of toxic pollution that I have discussed are causing widespread contamination of the Niagara River and its surrounding environment. This, in turn, results in a serious potential hazard to human health. Toxic pollutants are consumed in drinking water and in the contaminated tissues of fish and wildlife that bioconcentrate industrial residues. In all likelihood, most of the residents in the Niagara Frontier already carry a body burden of toxic chemicals in their flesh as a result of these two kinds of exposures. The implications of this scenario are, perhaps, the greatest cause for controversy in our study. In effect, the consumption of low-levels of potentially cancer-causing or otherwise toxic chemicals could constitute an unprecedented threat to the public health.

The ad hoc committee on the Evaluation of Low Levels of Environmental Chemical Carcinogens reporting to the Surgeon General in 1970 recommended that:

No level of exposure to a chemical carcinogen should be considered toxicologically insignificant for man...The principle of a zero tolerance of carcinogenic exposures should be retained in all areas of legislation presently covered by it and should be extended as well...Any

substance developed for use not primarily involving exposure to man but nevertheless resulting in such exposure, if found to be carcinogenic, should be either prevented from entering the environment or, if it already exists in the environment, progressively eliminated.

As the public is increasingly exposed to toxics, their risk of health hazards rises. In the long run, cancer and other environmentally-induced diseases could result. Cancer is a latent disease. Present cancer rates are a reflection of events that occurred as long ago as forty years. In the years to come, cancer rates could rise even higher than those we are experiencing today.

While a causal link has not been established between low-level exposure to cancer-causing toxic chemicals and the incitement of human cancers, there is good reason to prevent such exposures. Witness the following statement by Dr. Wilhelm Heuper, former head of the National Cancer Institute's Environmental Cancer section, and an associate, who warned in 1963:

The rapidly increasing pollution of many bodies of fresh and salt water with [such] carcinogenic agents and the inabilities of the presently used filtration equipment to remove adequately such contaminants from the drinking water supply has created conditions that may result in serious cancer hazards to the general population.

In 1964, an expert committee on the prevention of cancer reporting to the World Health Organization (WHO) concluded that:

Effective measures are needed to prevent the introduction of carcinogenic industrial wastes into the atmosphere and into public waters serving as sources of drinking water supply...Although at present no clear evidence exists that such carcinogenic industrial contaminants of the air and water have become an actual environmental cancer hazard to the general population, they should be viewed with serious concern, so as to forestall such complications in the future.

In 1980, the International Agency for Research on Cancer reported:

...In the absence of adequate data in humans it is reasonable, for practical purposes, to regard chemicals for which there is sufficient evidence of carcinogenicity (i.e., a causal association) in animals as if they

presented a carcinogenic risk for humans. The use of the expressions "for practical purposes" and "as if they presented a carcinogenic risk" indicates that at the present time a correlation between carcinogenicity in animals and possible human risk cannot be made on a scientific basis, but rather only pragmatically, with the intent of helping regulatory agencies in making decisions related to the primary prevention of cancer.

Similarly, the National Academy of Sciences Safe Drinking Water Committee stated in 1977 that:

Effects in animals, properly qualified, are applicable to man. This premise underlies all of experimental biology and medicine, but because it is continually questioned with regard to human cancer, it is desirable to point out that cancer in men [sic] and animals is strikingly similar. Virtually every form of human cancer has an experimental counterpart, and every form of multicellular organism is subject to cancer, including insects, fish, and plants. Although there are differences in susceptibility between different animal species, between different strains of the same species, and between individuals of the same strain, carcinogenic chemicals will affect most test species; and there are large bodies of experimental data that indicate that exposures that are carcinogenic to animals are likely to be carcinogenic to man, and vice versa.

NYPIRG believes that prudent public policy regarding toxic exposures should reflect these concerns.

To that end, the New York State Department of Health has already taken action. People who fish are given the following health advisory:

To minimize potential adverse health impact, the N.Y.S. Department of Health recommends that:

- You eat no more than one meal (1/2 pound) per week of fish from any water in the state;
- Pregnant women, nursing mothers, infants and young children should not eat fish with elevated levels of mirex, PCBs and/or mercury;
- You eat no fish taken from the Valatie Kill drainage system south of Route 152 and north of Nassau Lake. Additionally, American eels and black crappies taken from Nassau Lake should not be consumed.
- You eat no eels from the Hudson River, Lake Ontario and its tributaries to the first barrier impassable to fish, or the St. Lawrence River;

- You eat no lake trout, chinook salmon, coho salmon over 21", rainbow trout over 25", brown trout over 18" between 7/1 and 2/28, or catfish, from Lake Ontario and its tributaries to the first barrier impassable to fish;
- You eat no smallmouth bass over 12" taken from the St. Lawrence River or from Lake Ontario, east of Oswego Harbor, and no smallmouth bass taken from Lake Ontario, west of Oswego Harbor.

Levels of PCBs and mirex can be reduced by removing the skin and fatty portions along the back sides and belly of smallmouth bass, brown trout, and lake trout. Trimming will not reduce these levels in chinook salmon.

Similar preventative measures have not been taken to safeguard the public from toxic chemicals in drinking water. Recently the Council on Environmental Quality released a report entitled Drinking Water and Cancer: Review of Recent Findings and Assessment of Risks. One of the report's major conclusions was that:

The recently completed case control studies have strengthened the evidence for an association between rectal, colon and bladder cancer and drinking water quality provided by the earlier epidemiological studies reviewed by the National Academy of Sciences committee. While the epidemiological studies completed to date are not sufficient to establish a causal relationship between chlorinated organic contaminants in drinking water and cancer, they do contain evidence which supports such a relationship for rectal cancer and, to a lesser extent, for bladder and colon cancer.

Langdon Marsh presided at statewide hearings on organic chemicals in drinking water sponsored by the New York State Department of Health in 1980. His report to Dr. David Axelrod, New York's Commissioner of Health, offered the following:

Despite the uncertainties involved in establishing the health risks from exposure to toxic chemicals in drinking water, and in part because of these uncertainties, some action is required. The alternative of waiting until there is proof of actual harm, such as increased cancer incidence, ignores existing evidence of actual and potential health damage. Further, as a matter of philosophical choice and social policy, it is preferable to be cautious, providing as much protection to the public as available resources allow. Erring on the side of overprotection, if affordable and aimed at real, if difficult to quantify, risks, is better than taking no action until health deterioration becomes evident.



In addition:

The Department should adopt a conservative approach, setting the standards at concentrations as low as feasible taking into account current detection and treatment technology. For carcinogens, a risk level of one in one million (predicting the chance of contracting cancer in a lifetime) is suggested as the lowest practical limit which current scientific knowledge and technical advances will support. Comparable low levels for non-carcinogens are also suggested where evidence of potential harm is established. Somewhat higher uniform levels are recommended for substances for which appropriate studies have not been undertaken or the evidence of possible harm is weak.

NYPIRG supports these goals. We would add, however, that the strategy embodied in the Safe Drinking Water Act also suggests that treatment technology capable of removing the broad spectrum of toxics found in water be installed. This is essential for water supplies that tap contaminated sources such as the Niagara.

In conclusion, New York is at an environmental nexus. The Niagara is a singular river. Great efforts have been made to protect it. Progress has been made. But what of the future? Unless toxic pollutants are controlled, there will be an intensification of the problem I have outlined: drinking water contamination on a wider scale, fish and wildlife that are too toxic for humans to consume, possibly even more staggering cancer rates. Conversely, environmental conditions can improve. A renewal of environmental commitment could provide the funding that toxic pollution programs need to be fully effective. The onus of making those decisions lies with you.

Public opinion polls indicate that most New Yorkers still consider themselves to be environmentalists at heart. They greatly value the Empire State's rich environment. They do not want to see it laid to waste. Unless drastic action is taken to strengthen and expand existing pollution control programs, that will surely be New York's long term fate. Severe cuts in federal environmental programs will be a heavy toll unless New York can muster the funds to finish the job that was begun many years ago. Please consider the future that you decide on a course of action.

Thank you. I will try to answer any questions my testimony may have raised.