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PREPARED FOR DELIVERY BEFORE THE
NATIONAL PRESS CLUB
THURSDAY, FEBRUARY 26, 1976, 1:00 P.M.

Testing Chemicals, Not People:
Bringing the Chemical Threat Under Control

W.H. Auden once remarked that: "Today in the technologically advanced countries . . . we have little to fear from nature; our only serious problem is man . . . His mastery over nature has, as it were, brought man back to the same point at which he stood when he was utterly helpless before her."

There are, however, some differences. It is, to begin with, no longer the creatures and forces of the natural world that most threaten us: it is no longer even such historic diseases as the pox or the plague; it is, instead, such strange new creatures of our own making as "bis-chloromethyl ether" and "nitrosamines" and "polychlorinated biphenyls" and "polyvinyl chloride." They are all around us -- in our air, our water, our food, and in the things we touch. When they hit us, we don't feel a thing. Their ill-effects may not show up until decades later, in the form of cancer -- or even generations later, in the form of mutated genes -- when it is, often, too late to undo the damage.

Most Americans had no idea, until relatively recently, that they were living so dangerously. They had no idea that when they went to work in the morning, or when they ate their breakfast -- that when they did the things they had to do to earn a living and keep themselves alive and well -- that when they did things as ordinary, as innocent and as

essential to life as eat, drink, breathe or touch they could, in fact, be laying their lives on the line. They had no idea that, without their knowledge or consent, they were often engaging in a grim game of chemical roulette whose result they would not know until many years later.

They had no idea until, increasingly over recent years, they picked up the morning paper or turned on the evening news and learned of some new chemical hazard they had been exposed to, often for years and almost always unwittingly. Increasingly, as well, they learned about the appallingly high death rates as a result of cancer and saw people they knew and loved go through the awful agony of a death by cancer. As a result, I think, the American people are deeply concerned both over the pervasive presence of chemical contaminants throughout the environment and over the high death rates from cancer. And they may even make the connection between the two. But I do not think there is, among the public at large, any real understanding of the precise nature and extent of the hazards posed by chemical contaminants -- as causes not only of cancer but of other serious ills and afflictions -- or of what we can and must do to deal with them.

Let me highlight some of the most important points we should keep in mind about chemicals and their effects upon human health and life:

1. Over the past few decades, and especially since the end of World War II, we have released into the environment a vast volume of entirely new chemical compounds with little or no knowledge of their health effects and virtually no effort to determine those effects and to regulate the release of many chemicals that might be hazardous.

2. We have reaped enormous benefits from these chemicals -- indeed, from the truly marvelous advances in chemical knowledge and technology that we have achieved throughout modern times. We must measure these benefits, not only in the economic terms that are apparent to us all, but in health terms as well. The fact that we are the first generation in human history to be virtually free of the major infectious diseases is, in no small degree, a result of the application of chemical advances to modern medicine and modern life.

3. The World Health Organization estimates that between 60 to 90 percent of all cancers are the result of environmental factors -- in the broadest sense of that phrase. National Cancer Institute studies have shown that the highest cancer rates in the country occur in areas with the heaviest concentrations of industrial chemical use and activity. Yet of all the chemical agents in the environment, probably only a very small fraction is responsible for that large share of cancer. Indeed, the odds are that only a relatively small portion of the chemicals in our environment pose any serious health threats.

4. It may take only limited exposure to contract cancer. It typically takes anywhere from 15 to 40 years after that exposure for the first onset of cancer to occur. Because of that long latency period, we have reason to believe that the full impact of the chemical explosion we have experienced over the past 30 years has only begun to show up in our cancer statistics. Yet already, the experts tell us, one out of every four Americans now alive will ultimately contract some form of cancer.

5. A large and growing share of the diseases that cripple and kill us are caused by environmental factors -- again, in the broadest sense of that phrase. These diseases are going to take an increasingly heavy toll upon our lives and well-being, unless and until we stop trying to deal with them by treating them after they occur, and start taking serious steps to prevent them from occurring in the first place. Our national health care effort must increasingly stress the prevention rather than the treatment of disease, and effective measures for the assessment and control of potentially dangerous chemicals and other agents before they enter the environment must be a key element in this new shift toward preventive medicine.

To expand on these points: There are today more than 2 million different known chemicals; every year, this list grows by an estimated 25,000 new compounds. There are today more than 30,000 chemicals in actual commercial production; every year, this list grows by some 1000 new compounds. Of the more than 2 million known chemicals, only a few thousand have been tested for carcinogenicity and -- aside from those used in food additives, drugs and pesticides -- only a few hundred have been adequately tested. We know, in fact, very little about the health effects even of the 30,000 chemicals already in commercial production. We have no way of systematically screening the chemicals that do go into production; we have no way of knowing precisely which chemicals go into production every year. In other words, we not only don't know whether

what's going out there is dangerous -- we don't even know what's going out there.

We have, however, learned one thing: it's what we don't know that can really hurt us, even kill us.

Long after they have been loosed upon the world and the public at large, we have learned what an appallingly wide range of disease and death can be caused by chemicals -- they can attack the liver, the lung, the kidney, the central nervous system; they can cause cancer, infant mortality, and genetic damage. We have learned, for example, that:

- mercury, lead and cadmium can attack the central nervous system;
- carbon tetrachloride and chlorinated phenols can destroy the liver;
- ethylene glycol and cadmium sulfate produce kidney disease;
- asbestos and beryllium often lead to lung disorders;
- vinyl chloride and arsenic cause cancer.

We have seen our fish contaminated by phthalates, our cattle poisoned by polybrominated biphenyls, and our horses killed by dioxin. Fluorides have destroyed forest seedlings, chloramines have killed oysters, and zinc has damaged our wheat crops. And now the fluorocarbons may be threatening the ozone belt.

When I became the first Chairman of the Council on Environmental Quality in February, 1970 -- almost exactly six years ago -- my very

first directive to our small staff was to develop a legislative proposal for coping with the class of problems presented by chemical and other contaminants. A year later, in February, 1971, this legislation, known as the Toxic Substances Control Act, was submitted by the President to the Congress. Twice, over the past five years, the Senate and the House have passed versions of this legislation, but have been unable to agree on the same version. Last week, the Senate Commerce Committee reported out Toxic Substances Control legislation for action by the Senate. In the House, the legislation is being considered by a subcommittee of the Interstate and Foreign Commerce Committee.

Over the five years since such legislation was first proposed, we have introduced into the commercial market an estimated 5000 new chemicals. We have done so without any systematic, advance assessment of their potential impact upon public health or our ecological resources. We find ourselves still without the authority we need to cope with such long-standing problems as those posed by polychlorinated biphenyls. Last week, you may recall, it was announced that, for the first time in history, the Hudson River will be closed to commercial fishing because it is contaminated by these chemicals. In the Great Lakes, commercial and sports fisheries that are being restored as the result of massive pollution clean-up efforts are now being threatened by PCB contamination. We remain almost entirely unable to discover how harmful a compound can be until years after it has become a rather commonplace item in our everyday life, even a significant factor in our economy. And, over and over again, we find ourselves engaged in an extremely difficult and

drawn-out struggle to protect the public from a hazard to which it has already been exposed while at the same time trying to avoid putting people out of business or out of work.

Polyvinyl chloride, for example, was first introduced commercially some 40 years ago. It is the backbone of much of our plastics industry. Its manufacture, according to industry figures, accounts for one percent of our Gross National Product. Yet it was not until 1974 that we discovered four cases of an extremely rare form of liver cancer among workers in a polyvinyl chloride plant in Louisville. Not until later did we find among these workers excessive cases of more common forms of cancer as well. Only in the last decade or so have we developed the scientific skills and analytic techniques that would enable us to anticipate these effects of vinyl chloride, and a Toxic Substances law enacted several years ago would hardly have helped us prevent this problem. But the odds are that, until we enact such legislation, we will be confronting more and more such situations in the future -- and we can be absolutely certain that, until we enact such legislation, we will be unable to prevent them from occurring. I might add that our experience with vinyl chloride as well as with such chemicals as asbestos and, most recently, Kepone underscores the fact that it is on the job and in the workplace that the hazards posed by such chemicals are most immediate and acute. It is the workers, and the families of workers, in the shops and factories where such chemicals are made and used who bear the brunt of the chemical threat and would benefit most from the early enactment of toxic substances legislation.

The plain fact is that, had the Toxic Substances Act been enacted five years ago when it was first proposed, we would be a lot farther ahead in dealing with some potentially very serious hazards:

-- We would have begun to reverse the spread of polychlorinated biphenyls which are now destroying some of our valuable fisheries;

-- We would already have, as we now do not, reliable test information concerning the effects of vinylidene chloride which is widely used throughout the plastics industry;

-- We would have a greatly improved data base for determining the extent to which benzidine-derived dyes reconvert to free benzidine, a well-known human carcinogen, when these widely-used dyes are accidentally ingested or absorbed;

-- We would have taken a number of steps to clarify the chronic effects and, as necessary, to limit exposure to tris 2,3-dibromopropyl phosphate, which has mutagenic effects in microbial systems and is widely used as a fire retardant in textile products, including children's pajamas.

I do not think any of us is under the illusion that there is, or is ever going to be, any such thing as a sinon-pure, anti-pollution safe world. I do not think any of us imagines that there is, or is ever going to be, a real world without very real risks. But there is absolutely no reason why we cannot -- there is, in fact, every reason why we must -- take sensible steps to exercise some intelligent and effective control over the risks that we ourselves create. The basic aim of the toxic substances control legislation before the Congress is to help us gain

that kind of control -- to help us protect human health by bringing down to reasonable levels the risks that chemicals pose while preserving their benefits. We are not talking, in other words, of getting rid of all risks from chemicals, but rather of finding out what the risks are and, eventually, of removing "unreasonable" risks. We are saying that, whatever we do with these chemicals, we ought to know what we're doing before we do it, and we ought to do it with our eyes wide open.

We are saying, more specifically, that before people are unwittingly and unwillingly exposed to a chemical that could hurt or kill them, we take the trouble to find out what the health effects of that chemical might be, and we insist that the public interest be taken fully into account in the process by which we determine those effects and decide whether, or in what circumstances, we "go public" with that chemical. These decisions to test and go public cannot -- as they now are -- be left simply and solely in private hands. The public at large is deeply and directly affected by these decisions, and it must have -- or it now does not -- a very real say in the process by which they are made. The toxic substances legislation now before the Congress would, for the first time, give the public that say.

As you might suspect, there is some disagreement about some of the details of the legislation before the Congress. The Administration strongly supports toxic substances legislation, but wants to make certain that it does not impose unnecessary red tape upon industry or government. Inevitably enough, environmentalists are concerned that the legislation

will not be nearly strong enough; and industry, or at least some segments of it, is concerned that it will be strong enough to strangle the industry. Sad as it may seem, dull and undramatic as it may appear, the truth lies somewhere in-between. The differences in detail about, and among, the different pieces of legislation before the Congress are far less important than the fact that their common aim is to give public health far more of the weight that it deserves in the decisions by which chemicals enter and spread throughout the human environment -- the common aim of giving the American people not only the opportunity to understand and assess the risks and benefits of these chemicals, but a decisive voice in sorting out these risks and benefits.

The legislation before the Congress would give us the authority, which we do not now have:

- to get better information about the health and ecological effects, the distribution, the uses, the kinds and levels of exposure, of both known and new chemicals;
- to help prevent hazards and harm to human health and the environment from chemicals before we make major economic investments in them;
- to balance the various costs, risks and benefits involved before deciding whether, or under what conditions, a potentially hazardous chemical should be introduced into the environment;
- to help coordinate the presently fragmentary and piecemeal Federal approach to toxic substances.

I consider it of urgent importance that the Congress act now -- in this session -- to enact effective toxic substances legislation. Remaining differences should be resolved as rapidly as possible. But it is more important to get legislation on the books now than it is to seek perfection. There will be time to improve legislative authority later as we gain more experience. But we can no longer afford to wait for the basic authority to deal effectively with the problems of chemical pollution.

We have done a great deal over the past several years to improve the regulatory process at EPA -- in particular, to make it far more open and equitable. Our decisions are subjected to more searching scrutiny, more critical review, from sources inside and outside the Agency and the government, than those of any other agency. We have made a strenuous and increasingly successful effort -- most recently in developing our Drinking Water regulations and in setting minimum standards for procurement under EPA grants for the construction of wastewater treatment plants -- to get all the major interested and affected parties actively and effectively involved throughout the process of developing a regulation. We also have the most open and rigorous process of economic impact analysis performed by any agency of the Federal government.

It is along these lines, according to these processes, that we would exercise our authority under toxic substances legislation. If the legislation does not require it, I would -- on my own -- appoint an Advisory Committee which is broadly representative of all major interests to help advise us on implementation of the Act.

It is unfortunate that some segments of the chemical industry, which originally took an extremely constructive approach towards the legislation, have taken to actively lobbying against it. I do not believe that either the public interest, or the interests of the industry, are well served by charges that the legislation could -- in the words of one industry spokesman -- "cripple" the chemical industry and give the Administrator of EPA "near-dictatorial authority over the introduction of new chemical products." The only real "crippling" that is going on is the kind which this legislation would try to prevent -- the crippling of who knows how many Americans every year who contract cancer or some other affliction after exposure to some hazardous chemical agent. Nor has it been on the "near-dictatorial authority" of the EPA Administrator that so many such agents are introduced into the environment without any effort to find out what their health effects are, much less let the public have any say about whether or not, or in what circumstances, it is willing to be exposed to them. Let there be no mistake: the only kind of authority the legislation before the Congress would give us, and the only kind of authority we would intend to exercise, is the authority to act reasonably and responsibly in the public interest -- and that includes the very real interest the public has in a healthy and productive chemical industry.

The chemical industry has annual sales of over \$100 billion. We have estimated that the annual costs to industry as a result of this legislation would range between \$79 million and \$142.5 million. The

Manufacturing Chemists Association has estimated costs ranging from \$360 million to \$1.3 billion a year, with "start-up" costs of over \$100 million. Dow Chemical Company estimates an annual cost of \$2 billion. At the request of Congress, the General Accounting Office (GAO) analyzed and assessed these different estimates. The GAO concluded that the Dow Chemical estimates were the "least reliable," and that the EPA estimates were the "most reliable" -- although they believed EPA's figures were about 30 percent too low. In testimony before Congress, a GAO spokesman said that "the EPA interpretation is closer than the industry studies to an accurate picture of what the legislation will entail." Indeed, recent developments suggest that real breakthroughs are being made in the development of faster and less costly testing methods. The GAO further pointed out that none of the estimates considered the costs to society in avoidable and unnecessary suffering and death as a result of exposure to hazardous chemicals -- the huge expense that society bears because of the failure to invest enough time and money in determining the hazards of chemicals.

I should think, indeed, that industry would reap some very real benefits from the approach this legislation contemplates. The testing of potentially hazardous chemicals before "going public" with them would let us know, not only which ones are likely to be harmful, but which ones are not. Since these tests are by no means fail-safe or fool-proof, we cannot precisely give a chemical an absolutely "clean bill of health," but the industry can market and the public can accept it with

far greater confidence than they can now. Moreover, the "preventive" approach would increasingly reduce the likelihood that we would have to take action against a chemical after industry has invested extensive resources in its production. Far from "stifling innovation," the legislation should serve to encourage the industry to turn its remarkable skills and resources toward the discovery and use of less hazardous chemicals.

The issue before us is really very clear: will we continue to set so low a value on human life and health that we will refuse to take the thoroughly sensible and modest steps to protect them that the legislation before the Congress would involve? Will we, instead, bring better balance to the decisions by which chemicals are made and marketed by giving full weight to public health in reaching those decisions?

It is not, as some have suggested, a question of assuming that every chemical is dangerous until proven otherwise -- although I would find that a preferable alternative to assuming, as we do now, that every chemical is harmless until we come up with a body count and a clear-cut case. It is a question, rather, of honestly and openly acknowledging that we simply don't know whether a chemical is dangerous or not and that, before we expose the public to it, we should take at least a reasonable amount of trouble to find out.

It is time we started putting chemicals to the test, not people. It is time we gave the people of this country some reason to believe that, every time they take a breath or eat or drink or touch, they are not taking their life into their hands.

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It is time that, down here on earth, we took a couple of small, sensible steps on behalf of human health and life.

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