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**WRITTEN AND ORAL TESTIMONY**

**NEW YORK STATE ASSEMBLY  
PUBLIC HEARING**

**Standing Committee on Environmental Conservation  
Thomas P. DiNapoli, Chair**

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Good morning, Assemblyperson DiNapoli and other stakeholders.

My name is Ted Henry and I am a toxicologist and community involvement specialist from Baltimore, Maryland. I have been the technical advisor for community groups participating in the cleanup of contaminated military sites from Aberdeen Proving Ground in Maryland, to Denver, Colorado and Vieques, Puerto Rico. I also build and execute community involvement programs for government entities that want to be proactive and include citizens in the cleanup process. In addition, I have participated in national policy dialogues, worked closely with EPA and state regulatory agencies and volunteered on a variety of Superfund-related endeavors.

I took the time to come and participate in this hearing today for a singular purpose - to use my experience on various sides of the cleanup table and paint for you a realistic picture of the tough challenges that lie

ahead for New York and its residents with regard to the emerging risk of vapor intrusion. The overall message I bring today is that, from all I have seen, we too often forget the people in the trenches, which include the residents of Endicott, groups like Citizens Acting to Restore Endicott's Environment, and the individual regulators who step forward and personally commit to making a difference. Their greatest source of hope for not being forgotten, outside their willingness to never quit, comes from the leadership support that can be provided by this committee and other elected officials, who can write proactive, protective bills, attend public meetings and ask the tough questions to bring the light of day to environmental health policy.

First, it is important to understand the crux of the issue with regard to addressing trichloroethylene or TCE contamination and vapor intrusion. The debate is not and will not be a scientific one. TCE has been the focus of significant study. The Agency for Toxic Substances and Disease Registry (ATSDR) developed its first Toxicological Profile on this compound more than a decade ago. In 2000, the scientific journal Environmental Health Perspectives produced an entire edition focused solely on the state of the science for TCE. Enough scientific data existed to prompt the Environmental Protection Agency to generate a comprehensive TCE health risk assessment in 2001. In short, I would be surprised to find any scientist

who would not place TCE within the top 100 studied compounds out of the 80,000 used in industry today. While some may suggest to you that there are serious questions about the supporting science, I do not believe this is the driver for the lengthy multi-party review and delay in finalization of EPA's risk assessment on TCE. The driver is almost certainly economic.

Several years ago, the United States Air Force began efforts to increase the maximum contaminant level, or MCL, for TCE in drinking water from 5 micrograms per liter to 50 micrograms per liter. The driver to pursue this 10-fold increase in the MCL was significant cost savings for an already strapped cleanup program. Usually such attempts to reduce the protectiveness of a drinking water standard or to defeat efforts to make one more stringent revolve around data gaps, limitations of epidemiological studies, safety factors assigned to account for scientific uncertainty, etc. These arguments are not specific to TCE. These are inherent uncertainties, within the risk assessment process, that will exist for every chemical for as long as we have science. The level of scrutiny focused on such uncertainty is proportional to the economic costs of accepting and enforcing what the available science suggests.

The understanding and application of science is not as complicated as many present it to be. There is significant TCE data from which non-

technical people can glean a great deal of information. From Superfund data, TCE is clearly a very common contaminant and a serious risk driver for remediation. From the risk-based concentration RBC tables from EPA Region 3, you will find only 33 out of the 450 compounds listed in the October 2002 edition are more toxic than TCE based on their respective tap-water comparison criteria (October 2002 version). In other words, TCE is in the top 8% based on toxicity using these tables as a measure. The RBC tables are particularly useful because RBCs, unlike MCLs, are calculated strictly based on the available science and the protection of human health.

TCE is absorbed quickly through all routes of exposure, distributes throughout the body, results in a variety of metabolites within the body, and, according to EPA and ATSDR sources, has the potential to induce neurotoxicity, immunotoxicity, developmental toxicity, liver toxicity, kidney toxicity, endocrine effects and several forms of cancer. And we cannot forget that there are several reasons to believe children are effected differently. I believe, if the United States applied even a modest precautionary principle based on the preponderance of scientific evidence, the current debate regarding TCE toxicity would not be taking place in

Washington D.C. and states would have the clear, up-to-date direction from the EPA upon which to build their own, respective approaches.

While the science suggests a need to be more conservative, the economic issues surrounding this high production volume chemical are significant and there are a variety of opinions available regarding how large of a role economics should or should not play in determining amounts released or left in the environment. As we wrestle with such debate, we must remind ourselves that there are several examples from history that show the impacts of making environmental health decisions based on economics.

For instance, the poisoning of children by lead was first reported in 1892. By 1904 the cause of the poisoning was correctly identified as dust from lead paint, which was flaking off walls inside homes. While Australia and many European countries restricted its use inside homes in the 1920's, the United States decided to wait half of a century to follow suit. The result was mental impairment or worse for tens of millions of American children that, in turn, impacted our economy to the tune of billions of dollars and continues to remain a serious public health problem today because we cannot or will not dedicate the funds to eradicate it.

We took a similar path in addressing smoking. Epidemiology began to suspect smoking caused lung cancer over 50 years ago. But, only in the last 10 years have we begun to take the issue seriously and actively reduce smoking in this country. Still, thousands of people die from cigarette smoke each year. The other lesson from cigarette smoke to note is that, though we began to accumulate scientific evidence connecting it to cancer 50 years ago, science only definitively identified a cellular mechanism by which it begins within the past few years. The key lesson from both of these examples is that if we wait for science to truly prove the impacts from a complicated toxic exposure before we take strong protective action, we will wait decades and pay a significant, long-lasting price in lost lives, available work force and funding needs that, in truth, we will not be able to meet.

While political and financial battles will wage in Washington, D.C. for years to come, the communities in New York State and elsewhere across the country will rely on the regulatory process to do the best it can. What they will encounter on both the national, state and local levels will be, at times, inadequate and almost always extremely frustrating. This is by no means an indictment of a specific agency or the intentions of hard working individuals within New York or elsewhere. It is simply the predictable

results of undermanned agencies, evolving investigative approaches, a lack of funding and lack of training on how to identify and address important community needs.

On the federal level, we must remember that the EPA's focused efforts to tackle vapor intrusion is in its infancy compared to other media and exposure pathways. Unfortunately, the costs of this investigative learning curve is likely higher than what we experienced for other exposure pathways. For comparison, we have been investigating and remediating groundwater for twenty years. Today, we are still challenged to understand the subsurface and the environmental fate of the 80,000 plus chemicals we release to the environment. Confining layers, perched aquifers, outcrops and weathered bedrock all influence groundwater flow which directly impacts whether our sampling efforts will find and characterize the contamination in our groundwater. Despite these challenges, what we do have for groundwater is more than two decades of site investigation knowledge to help guide our assessments. We do not have this same wealth of guiding information for vapor intrusion.

Lead is a good contaminant example to show the inevitable learning curve of science and how our best efforts can fall short in predicting levels of exposure we can handle. Between 1970 and 1991 the US lowered the

official level for concern for lead from 60 to 40 to 30 to 25 and then to 10 micrograms per deciliter of blood. Even now, science has never found a safe level of exposure with regard to lead. This point is very relevant to TCE and vapor intrusion as the mounting science suggests what we previously thought was safe, is also short of the mark.

At the state regulatory level, even the most capable state environmental agencies face serious financial limitations, which of course, translates directly into manpower shortages. In states with less environmental will, the agencies face a more serious lack of technical personnel and an overabundance of political influence in both investigative and remedial decisions.

In the meantime, local health agencies are focused on classical public health issues such as drug use, AIDS, E. Coli, influenza, etc. Environmental health issues resulting from contamination remain too ambiguous and too large to build significant community, political or financial support. The tough reality we face as an entire Nation is that, in many states and at almost all local health agencies, the money, manpower and technical training just are not there to handle what is already out there, let alone the emerging issue of vapor intrusion. It will be critical that elected

leaders heavily consider these realities as steps are taken to respond to this public health issue and meet important community stakeholder needs.

In the months and years to come, state laws and resulting regulations will get written, agency personnel will attend the badly needed trainings, and affected, self-educated residents will fight an uphill battle for conservative cleanup numbers. The unavoidable strains on the process will force all involved to learn much more than they had planned and much of it on the fly. Unless America suddenly decides to take a new path, implementing proactive, protective measures against vapor intrusion and TCE, it will take years, and the side of economics will win over public health in more battles than it will lose. In turn, how we treated the affected stakeholders today and tomorrow may be the greatest gift the State of New York can give to its impacted communities.

While this committee faces tough choices, I hope you will consider taking action to ensure all involved agencies re-ignite or newly institute a community involvement process with HEART. I developed this concept of government agencies having HEART based on my experiences working directly with community stakeholders and being an activist myself and trying to improve our communities. HEART is an acronym for a five component paradigm involving Honesty, Empathy, Accessibility,

Responsiveness and Transparency. In my brief summary of this concept note that each letter or component of having HEART is dependent on the previous components.

The first is Honesty. Regulatory personnel too often engage the stakeholder from a perspective that the agency has all the answers science can provide and that everything is okay. Few believe this anymore and rightly so, as it is almost always false. Instead, agencies should acknowledge what they do and do not know, and what they are trying to do to help.

When one agrees to be Honest, one can then show the second component of Empathy. Empathy has to do with placing oneself in the shoes of those who must live with the contamination under or near their homes. People feel trapped and in danger when environmental contamination is discovered; yet, too often the process judges them for their emotion and concern. Too many personnel working on a project take stakeholder actions personally and quickly retreat to a callous or defensive posture that only adds fear to an already frightening process.

If one leads with honesty and conveys empathy, a project manager or agency representative can identify ways to be Accessible to those in need. Community members need the project personnel to be accessible in order

to learn and participate more effectively. Community members simply should not be shuffled off to a public relations person who has little knowledge of the project and no role in the decision-making process. If those addressing the issue are not Accessible, the community stakeholder will have little choice but to engage in battle rather than engage the process, and this is rarely good for anyone involved.

If one makes him or herself accessible, he or she must then be Responsive, which is the fourth component of HEART. Concerned stakeholders live with their concerns every single day. The anxiety never truly leaves until the issue is truly closed, which on environmental projects is too often measured in years or decades. If a regulator or agency is not responsive, then they are inherently destroying trust, which is all community members can hold onto as science plays catch-up and the regulatory and health agencies manage their own internal battles just to make ends meet.

The fifth, last and most important component is Transparency. Community members need to see the logic behind the decisions and what factors were considered. They have every right to know who has the decision-making authority and when hands are tied for an individual or an

agency, because without this information they have far less of an ability to voice their perspectives and improve the process.

Two of the most common reasons people within an organization fear transparency are because they think they will lose their decision-making authority or set a precedence that will subsequently run out of control. I have not yet seen a case where this turned out to be true in either my paid work or volunteer efforts. It is important for anyone trying to run a healthy involvement program to actively remind themselves of the importance of transparency, and a simple way to do this is as follows. If there is no transparency, all participating stakeholders are left with only the acronym HEAR. Any psychologist, good business manager or loving spouse will tell you that the ability to hear is far, far different than the ability to listen, and we can only listen to those affected by environmental contamination if we listen with HEART.

Some may ask why a toxicologist would spend time on this concept of HEART. I do so because science does not and will not have all the answers, nor will it even be the most influential factor in many towns and states where vapor intrusion is addressed. I close with this issue of HEART for people like Debra Hall from Hopewell Junction who I met in Albany last month. It is in her home where the strengths and weaknesses

of science and environmental investigation will play out. In the few minutes I spoke with her I learned about the death of her birds and a husband with liver issues, all of which took place in her current residence where TCE vapor intrusion is a concern.

The system that we have to address Debra's situation has many cracks, many of which are predictable. She has or will encounter a science that will be hard pressed to separate potential causes of the death of her birds, which could be TCE, off-gassing from Teflon cookware or a myriad of other possibilities that cost money to rule in or out. In turn, it is highly likely that the simple potential that it could be something other than TCE will be used to limit the funds that are made available to do the investigative work needed. She will encounter a regulatory process that will wrestle with manpower and funding to separate vapor intrusion from other commercial TCE products. She will even have a hard time with her husband's doctor who probably has little or no training in occupational or environmental medicine, and most likely will not truly listen to her legitimate concerns regarding TCE since she is not a doctor or scientist herself.

With some manpower, deductive reasoning and time the risks from TCE and the likelihood that other chemicals are or are not playing a factor in her home can be teased apart. But, there are many homes and the

system that exists to address environmental contamination is really not set up to handle individuals or single families. It is only through approaching contamination with HEART will we, as a team, have any chance of being successful in taking care of such stakeholder needs and concerns in Hopewell Junction, Endicott and other sites in New York and across this country.

I thank this committee for the opportunity to come speak today.