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TESTIMONY OF  
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Introduction

Good morning, Mr. Chairman and members of the committee. I appreciate this opportunity to present EPA's views on the value of comparative risk assessment, and the extent to which we use this tool to attain the Agency's, and the nation's, public health and environmental goals.

EPA's interest in comparative risk dates from 1987, when we produced a groundbreaking report, Unfinished Business, that assessed and ranked 31 different environmental programs that we had the legal responsibility for managing at the time. That report marked the first time in the Agency's history that we attempted a comprehensive, cross-media, risk-driven comparison and ranking of environmental risk. Then in 1990 EPA's Science Advisory Board (SAB) produced Reducing Risk, a report that examined strategies for reducing major environmental risks, and recommended improved methodologies for assessing and comparing risks and risk reduction options in the future.

Since then, comparative risk assessments have become more widely accepted as an input to the priority-setting process. They have been conducted by a number of state and local governments, and I am pleased to see that representatives from cities and states have been invited to present their perspectives to this committee. For its part, EPA has made use of this tool in our Agency-wide strategic planning processes, in our partnerships with state, local, and tribal governments, and in many specific programs, both regulatory and non-regulatory. There is no doubt that comparative risk assessment today is helping EPA, other levels of government, and the business community prioritize

risks, target our respective risk reduction efforts, and thus reap more environmental benefits for every dollar spent.

At the same time, I want to emphasize that the usefulness of comparative risk assessment is limited. It is not being used by EPA today, and most likely never will be used, as a bright-line, mechanistic way of ordering the Agency's priorities for either strategy, budgets, or actions. A number of other factors also have to be considered, and all these relevant factors, including but not limited to comparative risk assessment, have to be considered when the Agency sets its priorities.

For example, many federal environmental laws set timetables and deadlines for EPA to take specified actions or accomplish specified goals. EPA has an obligation to carry out the laws, which reflect the will of an elected Congress and properly reflect considerations beyond comparative risk.

Another difficult problem arises in any attempt to include human health and ecological risks in the same ranking. How do you prioritize the risks associated with pollutant exposures that may cause cancer in humans, as compared to degraded water quality in the Chesapeake Bay that may deplete oyster beds? The Science Advisory Board recognized this problem when they wrote Reducing Risk, and they did not attempt to include human health and ecological risks in the same ranking.

Community concerns also have to be considered when setting environmental priorities. If a community believes that action must be taken to solve what it considers to be a pressing environmental problem, then EPA has an obligation to respond, even if the problem does not rank high on a list of comparative risks.

Another consideration in setting priorities is the different roles that EPA has, depending on the environmental problem being addressed or program being implemented. For example, budget needs may differ depending on whether a regulatory program is implemented at the Federal level or is primarily implemented by the States. As another example, a program aimed at reducing risk through public education may have different budget needs compared to a program that provides technical assistance.

This is not a complete discussion of all the factors that enter into EPA's priority-setting processes. Other hard-to-quantify considerations, like intergenerational equity and environmental

justice, also have to be weighed. For our purposes here today, I simply want to emphasize that comparative risk assessment provides a useful mechanism for helping us think about environmental priorities, but by itself it cannot provide any complete answers.

#### Comparative Risk Assessment in Strategic Planning and Budgeting

An important area in which comparative risk information comes into play is in the Agency's planning, priority-setting, and budgeting processes. As required by the Government Performance and Results Act (GPRA), EPA developed a five-year Strategic Plan in 1997, Annual Performance Plans for Fiscal Years 1999 through 2001, and an Annual Performance Report for Fiscal Year 1999. I want to emphasize that EPA is one of the few, if not the only, agency to restructure its budget to match the goal and objective structure of its Strategic Plan. This allows Agency decision makers, Congress, and the public to identify the resources associated with each of the Agency's goals and objectives, and to compare the prospective benefits of these long-term outcomes when making judgments about the Agency's proposed priorities and funding.

In setting its strategic goals and objectives and developing specific budget proposals to achieve them, the Agency uses the best available scientific and economic analysis. The performance targets identified in the Strategic Plan, such as the objective of having 95 percent of the population served by community water systems receive water that meets national health standards by 2005, reflect the Agency's decisions on the relative priority the Agency will place on different environmental problems and programs. In communicating our GPRA goals and objectives, annual performance targets, and actual performance, the Agency has attempted to characterize for Congress and the public the nature of the different health and environmental risks that our programs are addressing.

With regard to annual budgets, comparative risk considerations have been explicitly factored into various internal Agency-wide budget investment and reduction exercises. As an example, our Office of Research and Development uses information on the relative risks associated with environmental problems in its annual cross-goal ranking used in determining research priorities. Furthermore, it would be fair to state that risk information, when available and relevant, is implicitly

included in most discretionary decisions made by Agency program managers, both in setting priorities within major programs and allocating resources across programs.

In recent budget formulation exercises, internal budget guidance specifically required that Agency investment proposals characterize human and ecological risk reductions. While risk information plays a role, GPRA priority-setting and resource allocation decisions are generally made on the basis of multiple criteria. Costs and benefits, equity, institutional and legal feasibility, statutory mandates and other Congressional direction, public values, risk tradeoffs, and government-wide priorities represent some of the factors that enter into budget discussions and decisions.

Many challenges face EPA, Congress, and the interested public in better using comparative risk information in environmental priority-setting and budgeting. Availability of cost and risk data is improving, but varies greatly across and within EPA programs. Methodologies for assessing risk and benefits are at varying stages of development. Finally, the diverse endpoints being addressed by environmental programs – such as cancer versus non-cancer health effects, human health versus ecological protection, reduction of chronic exposures versus prevention of low-probability but high-risk chemical spills and accidents – make direct comparisons of risks and benefits difficult. As we work to improve comparative risk data and tools for use in priority-setting and budgeting, EPA also will continue to improve the links between its budget and its GPRA goals and objectives in order to facilitate the ongoing dialogue with Congress and stakeholders about our priorities.

#### Comparative Risk Assessment in EPA/State/Tribal Partnerships

A strong partnership between EPA and state and tribal governments has always been one of the most important and effective aspects of U.S. environmental policy. As comparative risk assessments have become more sophisticated and useful over time, they have been incorporated into the EPA/state/tribal partnership in several fundamental ways.

For example, from the time that EPA and the SAB first began to assess and prioritize relative risks, the Agency has encouraged and supported similar processes by states, communities, and Native American tribes. Between 1990 and 1999 EPA provided financial and technical assistance to states,

localities, tribes, and watershed organizations to support comparative risk projects of their choosing. EPA provided expert advice on the process, developed resource materials, supported communications among project directors, and paid for project start-up costs. EPA required all parties involved to meet general project criteria, but the participants decided how they would apply the criteria, and they could use comparative risk assessments to meet their unique purposes. During the decade of the 1990s EPA provided about one million dollars a year to support these comparative risk assessment activities.

In most cases, the projects resulted in a much clearer understanding of local environmental challenges, and sometimes they inspired new environmental initiatives. The results of EPA-supported comparative risk assessments also led to the funding of several environmental risk-management initiatives that were already under consideration by state and local governments at the time. At EPA we are very proud of these accomplishments, and I think the state and local representatives you will hear from today will agree.

As these critical partnerships have evolved over the past decade, comparative risk assessments have played an increasingly important role. Because of our shared commitment to improving public health and environmental quality, in 1995 EPA and the states jointly entered into a new National Environmental Performance Partnership System, or NEPPS. This stronger, more collaborative partnership emphasizes that EPA and the states are mutually dependent on each other in our respective efforts to reach our shared environmental goals. Through NEPPS EPA and the states jointly set priorities for action, and we work together to clarify our roles and responsibilities.

The centerpiece of NEPPS is Performance Partnership Agreements (PPAs) between EPA and individual states. The PPA is the mechanism that allows each state, in conjunction with EPA, to set priorities, solve problems, and make the most effective use of our collective resources. Comparative risk assessment is one of the management tools used by states to determine which programs they want to target for improvement or strengthening as part of their PPAs. These agreements thus give states greater freedom to focus their resources on their highest environmental priorities, and comparative risk assessment is one way those priorities can be established. However, like EPA, states must comply with federal environmental requirements regardless of their considerations of comparative risk.

Under NEPPS the states also have more flexibility in administering EPA grant funds. With our new Performance Partnership Grants (PPGs), states now can consolidate a variety of individual grants into one. That kind of simplification and consolidation can be driven by comparative risk assessment. For example, if a comparative risk analysis showed that a particular source of drinking water poses relatively high risks, a state could combine funding for drinking water and solid waste programs and target it at the program in need of supplemental funding. Here again, greater flexibility and comparative risk assessment come together to strengthen a traditional partnership.

Let me give you an example of how this works in practice. Delaware's Department of Natural Resources and Environmental Control (DNREC) was the first to utilize a so-called "logic model," which uses comparative risk assessment to help set priorities. Different categories of environmental information were organized to reflect environmental conditions, stressors, and pollution sources. The DNREC then developed a self-assessment that addressed the department's activities and capabilities in relation to this information. The subsequent Performance Partnership Agreement contained joint EPA/state priorities and initiatives that reflected the environmental and program needs identified by the self-assessment. In short, comparative risk assessment was one of the primary forces shaping Delaware's PPA.

#### Comparative Risk Assessment in EPA's Regulatory Programs

To some extent, comparative risk assessment is used in many of EPA's regulatory programs. I would like to describe three in more detail, because that will give you a sense of how comparative risk assessment has been integrated into the Agency's more traditional activities.

For example, EPA is using comparative risk assessments to help set priorities in its program to control toxic air pollutants. Under Section 112(e) of the Clean Air Act, EPA is required to develop a Source Category Schedule (SCS) for promulgating federal emissions standards for 174 categories of sources of toxic air emissions. In determining scheduling priorities, the law requires EPA to consider three criteria: 1) the adverse effects of the different hazardous air pollutants; 2) the quantity and location of emissions of each pollutant; and 3) the relative efficiency of different groupings of source categories

or subcategories. To help develop this schedule, EPA established a system that combines emissions estimates, health effects data, and limited population information in order to generate an approximate idea of the comparative risks of the various source categories. This system was used in conjunction with other considerations, such as work load efficiency and the time needed to develop different standards, to establish the Source Category Schedule.

EPA also has used a form of comparative risk assessment in developing our Integrated Urban Air Toxics Strategy under Section 112(k) of the Clean Air Act. The law requires EPA to identify at least 30 pollutants that pose the greatest threat to public health in the largest number of urban areas. To address this requirement, EPA developed a methodology composed of three separate ranking analyses that each relied on information relevant to risk assessment, such as toxicity, emissions, ambient monitoring, and air quality modeling. We integrated the results of the three analyses to obtain the list of 33 urban hazardous air pollutants that will guide our actions under the strategy to protect public health in urban areas.

As in the air program, many of the priorities in our national water program are guided by the principle of addressing the highest risks first. For example, the Safe Drinking Water Act of 1996 provides clear direction to the Agency to focus on contaminants of greatest risk. Consequently, over the last few years EPA has issued a number of regulatory actions aimed at controlling high risk contaminants such as disinfectants and disinfectant byproducts. We have proposed criteria for determining when disinfection is required for underground drinking water sources, and proposed added protections for smaller drinking water systems. In addition, EPA now is gathering data on the occurrence and health effects of other contaminants. These data will help the Agency make sound decisions in the future about which drinking water contaminants are high-risk and warrant regulation, while also helping set priorities for drinking water research, monitoring, and guidance development, including health advisories.



### Comparative Risk Assessment in Voluntary Programs

Over the past decade, EPA has augmented its traditional regulatory programs with a variety of voluntary partnerships that can be targeted at either regulated or unregulated pollutants. These programs have proven to be remarkably successful, because many businesses have begun to realize that there is a strong linkage between economic and environmental performance. In most cases, as businesses become efficient and reduce or eliminate waste streams, they become more profitable. For these and other reasons, many businesses today are demonstrating environmental stewardship and improving environmental performance in ways that go beyond what government regulations require.

The growth of voluntary partnership programs in the 1990s occurred at the same time that the techniques of comparative risk assessment were becoming more sophisticated and more widely applied. As a consequence, many voluntary risk-reduction efforts – whether conducted by EPA, private businesses, or jointly – include a comparative risk component.

For example, EPA today is trying to find more effective, integrated, and comprehensive solutions to the complex environmental problems caused by specific industry sectors. At the same time, we want to reduce the regulatory burden on those same industry sectors. To meet those goals, we have initiated a sectors program that takes a more strategic approach to environmental protection. We tailor a set of actions – some required by regulation and some voluntary – to address the unique environmental issues, needs, and opportunities presented by different industries. The strategic design and subsequent implementation of these sector programs involve comparative risk assessments as part of the priority-setting process.

When EPA works in partnership with a particular industry sector, we jointly design a targeted set of effective actions that achieve cleaner, cheaper, smarter environmental results. This priority-setting process involves a comparative analysis of the industry's most significant environmental impacts and the likely effects of possible actions to address those problems. This analysis may not take the form of an in-depth, scientific study, but it does involve thorough consideration of existing data sources, current environmental priorities, and expert stakeholder perspectives. The end result is a tailored, sector-specific action plan that, by definition, reflects the sector's comparative risk profile.

For example, EPA's metal finishing sector stewardship program started with a comparative assessment of that industry's multiple environmental impacts. The stakeholders involved, including EPA and industry representatives, reached the common conclusion that the greatest environmental stewardship opportunities in this industry sector were water and energy conservation, reduced metals loadings, and reduced sludge generation. EPA then was able to work with the industry and other stakeholders to develop a first-of-its-kind stewardship program that set voluntary performance targets for those key environmental parameters.

Many of the innovative ideas developed and tested at EPA over the past decade have come together in a new program that the EPA Administrator announced on June 26. Called Performance Track, this program encourages businesses to do more than the law requires to protect human health and the environment. For those businesses that show exemplary environmental stewardship, EPA is going to reward them with a package of benefits that will include lower costs, streamlined administrative operations, and public recognition.

One of the most important actions that we're requiring of Performance Track participants is that they put in place a vigorous environmental management system. These management systems will have to include several specific components, including a facility-wide commitment to pollution prevention, environmental training for all employees, and an emergency preparedness program. We'll also expect participating companies to set specific performance targets and then hit those targets successfully.

And that's where comparative risk assessment will prove valuable. In their environmental management systems companies will have to characterize their environmental emissions, assess the health and ecological risks they entail, and then set risk-based priorities for improving their performance over time. In this sense comparative risk assessments lie at the heart of environmental management systems, and thus they will play an integral role in EPA's Performance Track program.

### Conclusion

As these examples demonstrate, over the past decade comparative risk assessment has

emerged as an important priority-setting tool at EPA. In most cases, more complete data bases and more sophisticated methodologies would lead to more robust results, and so at EPA we're continually working to improve our capabilities to conduct comparative risk assessments.

At the same time, I want to emphasize that these assessments will never, by themselves, provide an unambiguous, bright-line way of ranking the Agency's management priorities. No matter how much data we collect or how much further the methodologies evolve, the reality of risk reduction will always demand a large measure of judgment related to ethics, equity, and economics. Widespread public concerns, for example, may raise the profile of a particular risk and necessitate early and forceful Agency action, even if the risk is not very high when compared to other Agency programs. We sometimes may act to control relatively less serious risks if available risk management options are cheaper and more effective. And sometimes we have to apply simple human judgment when deciding on the relative importance of controlling risks to humans versus risks to ecosystems, or risks to current generations versus risks to the future.

In short, when setting priorities for budgets and actions, EPA has to consider a range of factors, one of which is comparative risk assessment. I believe we are using such assessments well today, and we will use them even more effectively in the future. But even as we improve their use and effectiveness, we should not lose sight of their inherent limitations

Thank you very much.