

THE ROLE OF SCIENCE IN SETTING THE ENVIRONMENTAL AGENDA

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A COMMITMENT TO SCIENCE-BASED RISK ASSESSMENT CAN BE THE BASIS FOR A NEW ENVIRONMENTAL POLICY THAT BUILDS ON THE SUCCESS OF TECHNOLOGY-BASED STANDARDS.

IN MY CAREER, I HAVE BEEN FORTUNATE TO HAVE THE opportunity to observe environmental policy and regulation from a variety of perspectives, and as I now consider the current direction of environmental regulation in this country, I am concerned.

The question facing us today is this: Is the traditional technology-based approach to environmental protection the appropriate model for the next phase of environmental regulation? Technology-based regulation may have been an adequate—and I would say a necessary—approach when national environmental regulations were first being considered, but that prescriptive model now seems too inflexible to sustain the next generation of environmental gains. I question whether continued reliance on technology-based standards will provide the insight and guidance necessary to allocate our limited resources to those areas where the greatest environmental benefit can be derived. I fear that continued reliance on technology-based standards might trap our industry and many others in an endless cycle of environmental control measures that offer minimal, incremental environmental gains, at large costs, simply because of the momentum of the past three decades.

At the same time, I must acknowledge the difficulty we face as a nation establishing an alternative regulatory scheme. It is an issue that has been discussed actively for

20 years, yet little progress has been made in overcoming institutional obstacles.

Before technology-based limits were imposed beginning in the early 1970s, environmental concerns were addressed on an ad hoc basis, with particular attention given to identifying egregious instances of environmental distress and implementing tailored solutions for that specific problem. This facility-by-facility approach was too labor-intensive and too uncertain in its outcome to serve as the model for the far-reaching environmental improvements that were needed at the time. Additionally, there was an industry concern that a level playing field with a consistent national approach was necessary to insure fair competition.

As a result, the pioneering federal environmental legislation of the 1970s was predicated largely on technology-based limits on emissions and discharges. The Clean Water Act, the Clean Air Act, RCRA, and other environmental legislation promulgated limits on emissions and discharges that reflected what was technologically feasible and practical at

the time. It is no accident that the acronyms that are a part of the lexicon of environmental regulation end in “T.” BCT, BPT, MACT, and a dozen other acronyms describe what technology would be used to establish limits on discharges and emissions.

These technology-based standards are now so ingrained in environmental regulation that we seldom, if



ever, notice them. They are just “there,” like water is there for fish. For the past 25 years, we have relied on “available technologies” to determine how stringent our permits will be.

Consider how technology-based standards have dominated the environmental agenda of the forest products industry. Since the early 1970s, the industry has responded to:

- Three separate rounds of effluent limitations guidelines targeting conventional, nonconventional, and toxic pollutants
- New source standards on criteria air pollutants emitted by kraft mills, boilers, and paper coaters
- Ongoing comprehensive MACT rules that limit emissions of a long list of “hazardous air pollutants” from chemical pulp mills
- A variety of additional technology-based limits, such as the Land Disposal Restriction treatment standards for hazardous waste.

We expect further technology-based MACT standards to be issued in the next two years that impose limits on combustion sources associated with chemical pulping, power boilers, and wood panel manufacturing.

In all fairness, it must be noted that the technology-based approach toward setting limits on emissions and discharges has achieved a remarkable improvement in the quality of our nation’s environment, and has done so with a certain efficiency. There can be no doubt that the widespread application of technology-based standards resulted in significant reductions in environmental releases and measurable improvements in environmental quality.

In many respects, the environment is in better shape now than at any time since the industrial age reached its stride in the United States in the 1920s. Human life expectancy has never been higher, and it continues to rise. NCASI’s surveys show that the industry’s environmental releases continue to decline on an absolute basis, even though production has increased significantly.

However, by the end of this decade, when the effects of the Cluster Rule and other MACT regulations and revised effluent guidelines have been realized, all of the “low-hanging fruit will have been picked” in our industry and in most industrial sectors.

This improvement in environmental quality has been accompanied by a new ethic in our industry and others regarding environmental commitments. Companies and whole industries that once stonewalled environmental regulation now exhibit a new proactive attitude toward environmental protection. There are many examples of this new attitude. For instance:

- The U.S. pulp and paper industry reduced its BOD and TSS discharges by one-third between 1988 and 1995, even though the national discharge standards for these releases remained essentially unchanged during this period. The U.S. industry is using the same amount of water now as it did in 1975, even though the industry’s production has increased by 80% to meet societal demand.
- In 1994 the U.S. forest products industry established the Sustainable Forestry Initiative, a commitment by industrial landowners and others that timberlands would be managed in a sustainable fashion and with the smallest possible environmental footprint. The requirements of the SFI program extend well beyond what is required by the Best Management Practices required in some states.

Most large companies are now preparing annual reports that highlight their progress in meeting environmental goals, and these goals typically go well beyond compliance with the law. By any measure, the attitude toward environmental responsibility has changed profoundly over the past 30 years.

In light of the progress we have made on the environmental front in reducing the emissions and discharges associated with industrial processes and the developments in establishing a new attitude toward environmental responsibility on the part of industry leaders, the question is “Where do we go from here?” Will we continue to push for further reductions in emissions and discharges derived from technology-based standards, even though further reductions are difficult to rationalize on the basis of environmental benefits? Will we find and implement alternative approaches that require “more treatment for treatment’s sake,” and focus our efforts on areas where real benefits are possible? Will we as a society tackle those areas where the remaining opportunities for environmental improvement are greatest but the political will has been lacking?

Are technology-based standards suited to guide the next phase of environmental regulation in the United States?

Consider some of the problems associated with technology-based standards.

- First, some technology-based standards don’t know when to stop. Best Available Technology and Maximum Achievable Control Technology mean precisely that—Best and Maximum—regardless of cost and regardless of whether there is a corresponding environmental need. Consider, for a moment, the staggering cost to our industry arising

from MACT controls on methanol releases, not only from the Cluster Rule applied to chemical pulping and bleaching, but also from new MACT regulations yet to be finalized for combustion sources and solid wood manufacturing. Does this expenditure make sense, when methanol concentrations at the fence line from our manufacturing processes are extremely low?

- Second, technology-based standards operate in isolation from other effects and do not consider environmental tradeoffs that now seem increasingly important. Tradeoffs seemed inconsequential when technology-based standards were first applied to remedy grave pollution concerns. Now, however, as we pursue smaller and smaller targets at higher relative costs, such tradeoffs become more important.

It has become clear that technology-based standards alone are inadequate to achieve further progress toward eliminating risks to human and ecological health. I suggest that an answer to the inadequacies of technology-based standards in this new environmental era is a new policy that relies heavily on science-based risk assessment as the basis for regulatory development. Under such a policy, risk assessments would serve to identify and prioritize those environmental risks most in need of direct action and most deserving of scarce environmental control resources. They would serve as the basis for controls of individual pollutants or groups of pollutants.

Our society has the capability to perform science-based risk assessments of high quality as the basis for environmental decision-making. To be effective, risk assessments should be science-based—using excellent data of the type that NCASI is known for developing, coupled with high quality analysis of risks to human and ecological health. Risk assessments should be peer-reviewed and open to scrutiny and comment by other stakeholders—and deliberate enough that reviewers' comments can affect the outcome. These risk assessments should be broad enough to encompass an entire pollution circumstance, unconstrained by the divisions and "silos" that are exemplified by our inability to come to grips with atmospheric sources contaminating water resources. These risk assessments should be communicated to all stakeholders, including environmental activist groups, legislators, regulatory agency personnel, voters, and industry, and they should trigger a national debate over risk and the best use of scarce resources.

When I served as the Administrator of EPA, I became concerned about the possible disconnect between EPA priorities, whether imposed by statute or resulting from other causes, and actual risks associated with environmental exposures. I commissioned an internal risk as-

essment study by EPA staff to identify the risks to human and ecological health that may arise from environmental causes, and to compare the Agency's priorities with the priorities identified in this study. After two years, the study group issued a report that examined 31 environmental issues for risks in each of four categories: cancer risks, non-cancer health risks, ecological effects, and welfare effects. It concluded that EPA was expending the majority of its effort and resources on some of the smallest risks. My successor at EPA then commissioned a review of the study by EPA's Science Advisory Board.

The Science Advisory Board endorsed the concept that EPA's efforts should be guided by careful risk assessment, but that data limitations and the scarcity of good assessments would limit the approach for years to come. Given these limitations, the Agency concluded that its efforts were certainly consistent with environmental risks as they were perceived by the public, but there were real discrepancies between the EPA risk assessment and the public perception of risk.

Overall, many different constituencies embrace the concept of using science-based risk assessment to guide future environmental regulation, but there are many obstacles to effective utilization of such studies. Data limitation is one of the primary hurdles to be overcome, given the enormous number of sources, compounds of concern, and possible negative effects associated with those compounds. It is clear from the studies that I authorized in the mid-1980s that a meaningful comparison of all environmental risks is probably too ambitious a goal to be realistically achieved. Instead, I simply propose it is possible to set priorities on a broad scale using risk as a guiding principle and that a detailed, science-based risk assessment be implemented whenever the next round of technology-based limits are considered.

Let me hasten to add that I envision that all of the current technology-based limits would remain in place, at least at the outset, and that the debate using science-based risk assessment would focus on the next tier of environmental controls and regulations. Before another round of tightening technology-based standards is implemented, a comprehensive risk assessment should be undertaken to justify the added cost and complexity. Arbitrary judgments—such as the conclusion that certain compounds are so troublesome that Best Available Technology or Maximum Achievable Control Technology must be used—would be supplanted by science-based assessments of actual risks to human and ecological health.

I suspect that a targeted program of risk assessments focused on technology-based standards would reveal some very interesting results. Indeed, I imagine that these risk assessments would show that we have reached the point of diminishing returns in controlling emissions and

discharges from many sources. I also believe that a fair treatment of risks would reveal that the best opportunities for reducing environmental risk would target those enterprises that have avoided most control measures to date.

Science-based risk assessment as the basis for the next focus of environmental regulation offers many attractive byproducts, in addition to rational decision-making and intelligent prioritization of environmental action. If we have a national debate over environmental risks, the public perception of risk might become more realistic.

I recognize that a new focus on science-based risk assessment as the basis for environmental regulation will be difficult to implement, both in prioritizing our environmental agenda as well as establishing a basis for limits within certain media. However, given the alternative, I believe it is essential that we work with a broad coalition of interests to promote this approach. It will require confronting special interest groups who have relatively fixed and often narrow objectives, as well as a statutory and regulatory scheme developed over 30 years that is very entrenched in its current approach.

In spite of these difficulties, I am convinced that we must try to implement a new national strategy where environmental policies are based on independent risk as-

sessments of high quality and credibility. Allowing technology-based standards to continue of their own momentum to demand lower limits makes no sense from the perspective of environmental needs and priorities. We need a national debate based on risk assessment to set the strategy for future environmental policies. We need to justify any additional limits on releases and any further implementation of control technology on risk assessments and cost-benefit analyses that demonstrate the need and cost effectiveness of the change. We need to be able to compare environmental tradeoffs associated with different environmental control measures. In my estimation, the best way to achieve that is through a new commitment to science-based risk assessment as the basis for a new environmental policy that builds on the success of technology-based standards. TJ

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