The American Bar Association
Section of Environment, Energy, and Resources
Special Committee on TSCA Reform

Practical Advice for TSCA Reform: An Insider Perspective

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The views expressed herein have been approved by the American Bar Association (ABA) Section of Environment, Energy, and Resources, but not yet the ABA House of Delegates or the ABA Board of Governors and, therefore, should not be construed as representing the policy of the Section or the ABA. On February 14, 2011, the ABA House of Delegates adopted Policy Resolution 118.[1]

Introduction

The American Bar Association (ABA) Section of Environment, Energy, and Resources (SEER) Special Committee on TSCA Reform assembled a group of former U.S. Environmental Protection Agency (EPA) senior officials, both career staff and political appointees, of past Administrations, both Democrat and Republican, to offer their thoughts on Toxic Substances Control Act (TSCA) reform.[2] With the perspective of a group which has "been there" in terms of being responsible for managing large federal chemical management programs, the Special Committee offers the following comments on various elements of the expected legislative debate about how to move TSCA forward and more effectively assess and control possible health and environmental risks from industrial chemicals.

Very purposefully we do not seek to offer an independent set of "principles" similar to those offered by other constituencies relevant to the TSCA debate. Other groups have done so, including the Obama Administration, and broadly speaking, they converge in a number of areas, as agreement on broad principles is easier to attain than agreement on particulars. We instead provide observations and cautions about select elements of the debate heard thus far. Hearings in both the House and Senate, as well as release of "principles" documents and public statements, provide an ample basis to identify not only what the key issues are likely to be, but also where there is likely disagreement over particular details of any proposals. We hope to

provide useful lessons and observations relevant to the eventual legislative debate based on our experience as former senior EPA decision-makers.

Almost all of the text that follows was written before the introduction of Senate legislation and the release of a House discussion draft with specific proposals for changes to TSCA. As we do not endorse any specific set of changes, we hope these comments are useful to those who now face the daunting task of attempting to forge anything resembling a consensus as the legislative process unfolds.

1. FQPA As a Template for TSCA Reform

There is discussion concerning a number of significant risk assessment criteria and the safety standard that could be taken from the Food Quality Protection Act (FQPA) and that might be appropriate for TSCA. Of particular note is the FQPA requirement for a special focus on exposure to children, that to ensure more protection for children that there be an additional safety factor ("extra" 10x factor for children's exposure), that aggregate exposure to all sources of possible exposure to the same chemical be evaluated (aggregate risk), that exposure to chemically (really toxicologically) similar compounds be evaluated together (cumulative risk), and that all exposures meet a standard of "reasonable certainty of no harm." This scheme has served the pesticide evaluation process well, and EPA was able timely to meet its ambitious schedule of evaluating approximately 450 pesticides and their 10,000 associated uses within a ten year time-frame.

Our observation in this regard would be to suggest that FQPA should be seen more appropriate as a guide than a specific template for parallel assessment and control of industrial chemical exposures. We expect that ultimately the FQPA standard will be a reference point for any new TSCA safety standard in that some variant of examining exposure to a chemical's aggregate exposure, and exposure to toxicologically-related substances, will be offered. Our contribution to this aspect of the debate is to note that there are critical similarities and differences that should be considered when evaluating how closely any new TSCA language should mimic the parallel FQPA language. The similarities are obvious. In applying the FQPA standard, there is the need to use science-based approaches toward consideration of cumulative and aggregate risk, and to assure the protection of those who are most vulnerable.

On the other hand, there are notable differences. Like pharmaceuticals, pesticides are more "data rich" than most industrial chemicals, and always will be. As a condition of registration, pesticide registrants must submit health and ecological effects data to demonstrate the pesticide does not pose an unreasonable adverse effect to human health or the environment. Pesticide exposure pathways are less complex and therefore easier to characterize in standardized fashions (food intake surveys, pesticide data program (PDP) monitoring results, and Food and Drug Administration (FDA) market basket food surveys). Unlike pesticides, TSCA chemicals are not designed to be biologically active, and relatively few are intended for intentional release to the environment and/or use in food production. Unlike industrial chemicals, pesticides are

registered for a limited number of specific uses with specified use practices. Finally, there are approximately 1,100 active ingredients registered as pesticides. There are over 86,000 chemicals listed on the TSCA Inventory with many potential new chemicals that could be developed in the future.

To overcome some of the differences between the two universes of pesticides and industrial chemicals, we would recommend an approach that includes a tight focus and application of more urgent deadlines in those settings with direct human exposures, especially those involving vulnerable populations and/or more direct exposures (*e.g.*, products intended for children; consumer product exposures; products used in the home; and products with worker exposure) and chemical uses involving ecological scenarios that threaten ecosystems (*e.g.*, potential greenhouse gases, aquatic or terrestrial bioaccumulators). Less urgent deadlines could be applied to other uses and exposures, such as those involved in industrial or commercial settings with low probability of worker exposures. Such an approach would focus data generation, risk evaluation, and stricter exposure mitigation requirements on selected areas where they are most needed. Otherwise, we are concerned that the process can become overwhelmed by data development and analytic demands and that consequent delay could result in failure to apply protections where protections are needed. In other words, in the case of chemicals, uniform sets of deadlines and requirements for all chemicals and all chemical uses regardless of their potential for exposure and risk would be self-defeating.

As data become available that indicate potential threats from a particular chemical or family of compounds, more ambitious evaluation goals could be imposed. This might suggest a basis for prioritizing or staging the approach to the evaluation process for the same compound (*e.g.*, exposures related to household chemicals would be assessed as a priority; risk triage for individual chemicals before imposing deadlines for cumulative risk analysis). Some avenues of exposure, such as occupational exposure, are already regulated by other entities such as the Occupational Safety and Health Administration (OSHA) and the Consumer Products Safety Commission (CPSC), and enhancement of data development needed by such entities as well as clarification to better sort out such dual authority situations may be needed.

The risk standard of "reasonable certainty of no harm" is a cornerstone of FQPA for evaluating exposures to pesticide residues in food. Taken on its face, it seems a reasonable starting point for a chemical regulatory standard. At the same time, many exposures to industrial chemicals are incidental or unintended, and best managed through mechanisms other than registration and licensing activities, such as control of the transport, storage, and handling of chemicals as well as control of waste disposal. Such technology-based standards will continue to be appropriate in the context of industrial chemicals, as efforts to make risk-based determinations will be fraught with very little data on potential exposure and levels of uncertainty such that the confidence bands are so wide as to render many initial assessments almost meaningless. This is not advice to abandon the use of risk assessment in favor of technology-based standards but rather to recommend application of technology-based standards as a more rapid way to achieve risk reduction during a time when chemical hazards and exposures are not well understood.

Also, in relationship to the paucity of data for many chemicals, Congress needs to establish mechanisms to allow EPA to do screening risk assessments. For example, in our experience with pesticide re-evaluation, in the earliest rounds of screening assessments for certain pesticides, where data were especially lacking on actual exposures and were replaced by "default" exposure values, some calculated exposures ranged as high as 700,000% of the allowable exposure limit. In many cases, when more realistic exposure data were made available, it was found that actual risk was well within a regulatory standard of a "reasonable certainty of no harm." By its nature, risk assessment is an iterative process. In the case of chemicals, if an initial screening assessment using protective defaults showed a chemical use not to present a potential concern, we would not advocate to push the analytic process further. Given that defaults by design overestimate exposures, however, the converse should not be a cause for an immediate public alarm or making conclusionary characterizations of the product in question. EPA needs to be given the space to work these issues through to conclusion, and needs the resources and the impetus to do it quickly and in a way that does not erode the public's confidence in EPA assessment procedures and conclusions. Our comment about misleading characterization of products is driven only in part by a general sense of fairness, as avoiding unwarranted controversies over exposure to a chemical, but also our sense that there could be very high transaction costs for the regulators, consuming significant resources that could otherwise be applied for the assessment and management of chemical risks.

If, as is likely, there is a requirement for aggregate assessment to a chemical, some exposure avenues may be found to contribute only incidentally to a product's risk profile. It should be possible for EPA to exclude from analysis exceedingly small exposures that otherwise will take a disproportionate amount of programmatic time and resources to evaluate and control, unless there is a subpopulation for whom this is a significant exposure.

2. EPA Organizational Capacity

It seems certain that any new law will have deadlines imposed for completing assessments over unknown time periods (X number of chemicals in Y number of years, or X per year, and so forth). EPA's experience with deadlines has been less than stellar overall (with FQPA being a notable exception). One unseen advantage of missing a deadline and having a court order for EPA to meet certain milestones comes in the internal budget battles within EPA. At the same time, overly ambitious deadlines both frustrate public expectations and can adversely impact program morale. In this subject area, we would offer the following advice.

First, any testing and evaluation plan will need a phase-in period. One oversight in drafting FQPA was the absence of a transition time between requirements for meeting the old and the new standards. Simply understanding the new requirements organizationally, as well as developing interpretations and policy in line with new legislative mandates, takes time. A transition period of 6-18 months is a minimum amount of time needed to begin to devise new policies and procedures and to engage stakeholders and the scientific community around these

efforts. If elements of the new requirements are to be completed through some element of rulemaking, the rule development process takes at least two years minimum and typically longer.

There is also likely to be some kind of fee system imposed on the regulated community. We would note that devising any such scheme will also take time, which means some delay in the generation of resources to enable the hiring and training of appropriate personnel to implement any new or revised programs. Determining the appropriate way to impose, collect, and share any fee schemes will not be an easy task, and more difficult than was the case of FQPA, which had an existing fee scheme imposed by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Congress should carefully craft this provision to enable EPA to move to implementation as quickly as possible.

Even more of a rate-limiting step in the initial phase will be the practical issues of recruitment and hiring. Many observers have stated that it took 18 months for the pesticide program to evaluate new requirements, devise new policies and procedures, and hire new personnel before outside constituencies believed that EPA had "digested" the new law and was acting with some semblance of order and predictability. Calling for a delay of one or two years when Congress and the White House announce with fanfare new and needed reforms finally becoming law is an unlikely scenario. At the same time, reasonable expectations in this regard could include some tiering or phasing-in of certain requirements, or explicit statutory provisions designed to bypass some of the otherwise inevitable sources of delay (*e.g.*, certain rulemaking procedural requirements, or provisions regarding the hiring of new staff or awarding certain support contracts), at least in the earliest stages of implementing any new legislation. Also, new requirements could similarly be phased-in -- for example, one-half the rate of chemical evaluations could be expected to be completed in the first years of implementation as compared to some later periods.

3. Numbers

The TSCA debate has regularly centered on what might be described as a "numbers game." That is, numbers are variously thrown about in the political debate to support the need for reform, usually starting with the general statement that with over 86,000 industrial chemicals listed on the TSCA Inventory, how many have been regulated under TSCA Section 6 (less than ten), how many have been required to be tested (a few hundred), and how many are "bad actors" (no one knows). The debate about numbers is a serious one not only as it provides needed energy and political interest in pursuing amendments (Congress has been woefully inattentive to TSCA since its inception), but also it impacts how legislatively to structure a revitalized regulatory program. A program designed to impose testing requirements and evaluate 86,000 chemicals has different needs and programmatic implications from one which is designed to handle an expected 6,200 chemicals (this being the number of non-polymeric chemicals produced in volumes greater than 25,000 pounds/year at a site in the 2006 Inventory Update Reporting (IUR) cycle).[3] The Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), the European Union (EU) system of modern chemical control, is already

strained by the scale of the demands imposed on industry and regulators and its cumbersome registration requirements, and it remains to be seen whether it can lead to a focus and actions on important risks and issues.

Similarly, if one has in mind that ultimately hundreds to a few thousand chemicals might require significant regulatory scrutiny as opposed to tens of thousands of chemicals, designing deadlines for Agency actions will be considered in a different light. The number is dependent on information yet to be had (the classic criticism of the current law), but the point here is to illustrate that reasonable estimates, or best guesses, can at least begin to inform how to structure any revitalized program. One simple element, for example, in determining any industry fee scheme must encompass an expectation of how big any enhanced program will need to be. Should the number of current staff of approximately 350 be tripled or quintupled? The pesticide program, evaluating a universe of about 500-600 chemicals has a staff of approximately 900. The evaluation of each pesticide is more intense. Arguably, the task under TSCA is far more challenging because of the greater array of chemical types and exposure scenarios.

To help inform estimates in this regard, we note that in the history of the premanufacture notification (PMN) review program, approximately 8% of submissions have resulted in some further testing requirements or the imposition of some kind of regulatory controls while an additional approximately 5% of cases were voluntarily withdrawn by the submitters (often this occurred in the face of possible action).[4] Further, if one assumes that approximately 50% of current TSCA Inventory-listed chemicals are no longer in production, 5% to 10% of 43,000 leaves one with the crude estimate of up to approximately 2,100-4,300 chemicals that may require some type of control action. Then again, if this analysis focuses on the approximately 6,200 nonpolymeric chemicals produced above 25,000 pounds per year at a site, it yields an estimate that ranges between 310 and 620 chemicals (5% to 10% of the 6,200). It is our collective guess that the likely number of chemicals that will require some type of control falls between these ranges.

Reasonable expectations about such numbers are more important given that some statutory deadlines are likely to be embedded in any new legislation, so evaluating 200 chemicals a year for ten years leads to a different design scheme than 8,600 or so a year for ten years. All chemicals among the 86,000 that are still in commerce will be subject to any new requirements and, given the numbers, there will be a need for an early triage element to establish the precise universe at issue. Our comments here are to avoid having the early triage phase as meeting simple numerical quota deadlines for the first years of any new program. In the absence of clear definition of goals efforts targeting chemicals most likely to be harming human health or the environment, EPA could "review" thousands of chemicals a year in the first years of a new program without making any meaningful risk reduction.

4. What TSCA Has Accomplished

The situation with TSCA's accomplishments is not as bleak as some observers have suggested. At the same time, there are important areas where the law did not -- or could not -- function effectively. The most important accomplishments under TSCA include:

- The creation of the Inventory in the late 1970s. When TSCA was passed in 1976, it was not known how many and what chemicals were in commerce in the U.S. and in what quantities. The TSCA Inventory was the first national Inventory created and contained some 60,000 chemicals manufactured or imported into the U.S. Since 1979, over 26,000 new chemicals have been reviewed and added to the Inventory and, starting in 1986, EPA has periodically updated the Inventory to obtain basic information about chemicals that are being manufactured, or imported. While largely invisible to the general public, the Inventory has resulted in massive benefits to public health and needs to be sustained and strengthened.

- The PMN Review Process. TSCA Section 5 requires advance notification from manufacturers and importers of new chemicals to allow EPA to review the new chemicals and consider the need for control actions or testing. The question of upfront testing on new chemicals received a lot of attention during the Congressional debate on TSCA and, in the end, test data were not required to be included in the notification. Because of this, the PMN program at the outset was seen by many as likely to fail. To deal with the fact that about 70% of PMNs included no test data and 85% included no health data, EPA developed and has relied on Structure-Activity Relationship (SAR) analyses to predict physical-chemical properties, environmental fate, and human and environmental effects. EPA is now recognized as the world leader in the use of SAR analysis and used the techniques to assess and regulate new chemicals and to implement ground-breaking efforts such as that on new chemicals that are Persistent, Bioaccumulative, and Toxic (PBT). While it is clear that EPA's decisions could have been strengthened by availability of additional data in many cases, at the same time EPA has used SAR tools to regulate approximately 8% of the over 40,000 new chemicals submitted while an additional 5% were withdrawn by their submitters often in the face of regulation. Many observers consider the new chemicals program to have been successful in its efforts to assess and manage new chemicals while encouraging continued innovation. Progress can be made in the future to improve SAR methods using newer insights about toxicology mechanisms and new high throughput technologies for biological assays, as well as providing EPA with additional authority to obtain information

when required. Moreover, Congress should consider whether it is appropriate for EPA to put the same level of effort into all new chemicals that are notified, when only about 50% will ever be manufactured and, of these, only a subset will be commercially successful.

- Other important successes include creative use of the Significant New Use Rule (SNUR) authority to regulate several thousand new and existing chemicals (it was particularly effective in dealing with the PFOS chemicals, a class of perfluorinated substances that the TSCA program was first to recognize as presenting significant risk concerns) and voluntary efforts such as the High Production Volume (HPV) Challenge Program (which, despite its limitations, considerably increased the available test data on HPV chemicals) and the PFOA 2010/2015 Stewardship Program (which appears likely to lead to significant reductions in the presence of PFOA and related perfluorinated chemicals in products and environmental releases). While not perfect, the SNUR process can be sustained and improved via Congressional authorization and oversight.

- Finally, some of the concepts found in the Chemical Assessment and Management Program (ChAMP), specifically the need to assess and prioritize existing chemicals for further action and to reset periodically the TSCA Inventory to keep the chemical listing reflective of what is actually in commerce, should be considered in developing a new legislative approach.

At the same time, TSCA Sections 4 and 6 proved inadequate to deal, respectively, with testing and risk management of existing chemicals, with testing regulations taken on only a few hundred chemicals and five chemicals regulated under TSCA Section 6. The 1991 decision that overturned much of EPA's Section 6 regulation on asbestos-containing products is a clear indication of TSCA's limitations.[5]

5. Recognize and Incorporate Related Global Activities

Any TSCA revision in 2010 or later needs to incorporate the changed world in which we live compared to circumstances in 1976. The REACH program is not only a driver behind some groups' desire to support TSCA modernization, but as an independent force REACH will generate substantial amounts of data and its authorization and restriction actions will occur over time. Also, the deadlines and expected schedules behind the REACH program will be relevant to what is reasonable to expect out of a revitalized EPA program. By the same token, the chemical assessment and management work that is underway in Canada, as well as that which has been or will be done in Japan, Australia, and other countries, also represent important contributions that could be relevant to the U.S. situation. Any new TSCA elements

will have to incorporate the realities of REACH's data development requirements while recognizing and, as appropriate, incorporating the assessments and actions that are taken not only by the EU but also by Canada and other countries.

There is also a need for any legislative deliberation about TSCA to include the provisions necessary to implement U.S. international commitments made as part of the Stockholm and Long Range Transboundary Air Pollution (LRTAP) treaties on persistent organic pollutants as well as the Rotterdam Convention on prior informed consent. The U.S. has been hampered in international forums because, as a signatory not having ratified these conventions, our ability to influence the debate has considerably waned. It is time for the U.S. to step-up and regain a leadership role in this arena.

Lastly, there are other international activities that will continue to impact how chemicals are produced and regulated in the U.S. Scientific guidelines for hazard evaluation and risk assessment are constantly evolving and being discussed in these forums. There will be an ever increasing need for coordinating regulatory approaches in a global economy. An example here is the agreed upon Global Harmonized System (GHS) for classification and labeling. Technical assistance to help establish modern regulatory regimes in the developing world will continue to be a U.S. obligation, especially in the context of the Strategic Approach to International Chemicals Management. New TSCA amendments should affirmatively recognize and embrace these growing global realities.

6. Keep It Flexible

Our last exhortation to those interested in modernizing the TSCA program is to ensure that we do not freeze in time or structure those elements that might seem eminently sensible today, but which over time might have quite unforeseen impacts. That in large part is the root of some current TSCA frustrations. In 1976, the idea of insisting that any TSCA Section 6 requirements be "least burdensome" seemed reasonable. The legislative record indicates there was little discussion of how the procedural steps needed to impose testing requirements might bog down into a 36-year delay (most concern centered on whether to require all new chemicals to have some required base set of testing).

Polychlorinated biphenyls (PCB) in the Hudson River were a major driver of the TSCA debate then, and what seems like a straightforward Congressional mandate in TSCA Section 6(e) has bedeviled the program to this day. EPA's most recent "discovery" of PCBs in window caulk comes to mind. Today, there is controversy about any number of specific chemicals (dioxin, arsenic, formaldehyde) and emerging technologies, such as the products of nanotechnology and biotechnology, and such concerns legitimately become both a rallying cry and flash point for many in the political debate about what is needed to modernize the law.

The science underpinning any hazard assessment framework, including the endpoints of concern (yesterday: cancer; today: endocrine effects; tomorrow: who knows) also

continues to evolve. Currently, the gold standard of testing and evaluation involves years of work, thousands of sacrificed animals, and a large resource investment. These might be replaced or supplanted by advances in "21st Century Toxicology" and other discoveries as yet unknown. Likewise, risk assessment methods have been evolving away from one-size-fits-all assumption-laden models and crude assumptions of exposure to more sophisticated modeling techniques that incorporate information about modes of action and pharmacokinetics. It is tempting to try to enshrine these newer scientific approaches into a statute. Requirements that are overly specific about how the regulatory science is conducted or evaluated, however, might be seen as outmoded, inefficient, or inappropriate in relatively short order if the Congressional appetite for TSCA legislative amendments appears only twice as often as Haley's Comet.

Our point here is to recommend that any set of new requirements, even if driven by an intense focus on any of today's problematic chemical exposures (real or perceived), or today's latest approaches to regulatory toxicology, be allowed to evolve with changes in both the inevitable changing science behind chemical evaluation and assessment as well as the regulatory options available to any then-incumbent decision-makers. The heated passions of political debate lead more to blunt and categorical pronouncements sometimes captured in legislation, which often later lead to unintended consequences years later as the regulators are constrained in available scientific tools and regulatory options.

Recent Developments

In mid-April, both the House and Senate saw draft legislation circulated that would fundamentally change the current EPA toxics program. In the Senate, S. 3209 has been introduced by Senator Lautenberg (D-NJ). In the House, Representatives Bobby Rush (D-IL), Chairman of the Subcommittee on Commerce, Trade, and Consumer Protection, and Henry Waxman (D-CA), Chairman of the House Energy and Commerce Committee, released a "discussion draft" of detailed legislative amendments to the current law. Rep. Waxman has also initiated a series of discussions among the many parties which have expressed an interest in toxics legislation, and hopes to have some agreements on a proposal during the summer of 2010. All observers believe that no final legislative action will be possible this year, given the complexities of the sweeping nature of the proposals and the fundamental limitations of the Congressional calendar (*e.g.*, an earlier adjournment and an already cluttered legislative agenda given the off-year elections of November).

As this current document was intentionally written without endorsing a separate set of "principles" or offering specific legislative recommendations, we hope the advice offered is of utility to those who will now attempt to negotiate the particulars of how to meet the broadly agreed upon goals. The new drafts of the language in circulation are full of particulars as they are each over 100 pages long, and now the long process of negotiation has begun. It would appear that some of the circulated language is intentionally broad if not vague (*e.g.*, how to allocate data development costs among affected parties), while other text appears to be finely crafted by the authors and now subject to the artful process of negotiation (*e.g.*, the list of

specific priority chemicals to be most immediately reviewed by EPA under the House discussion draft language, with no parallel specificity in S. 3209).

As the discussion evolves, the language of the current drafts will likely change significantly. As the process unfolds, and the fruits of those labors are made publicly available, it may be useful for the authors of this current document to opine on the state of affairs at that future time. For now, however, we will not offer comment on the particulars of either draft.

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[1] The Resolution urges the Congress of the United States to promote a robust dialogue on the necessary principles and considerations in any future Toxic Substances Control Act (TSCA) reform legislation and to enact legislation amending TSCA that reflects advances in the state of science and regulatory developments world-wide and enhances EPA's ability to ensure the safety of chemicals substances in commerce while retaining the country's competitiveness in the international marketplace for chemicals substances and products produced using chemicals. Resolution 118 states in its entirety:

RESOLVED, That the American Bar Association urges Congress to enact legislation to reform the Toxic Substances Control Act (TSCA) that :

1. Enhances the Environmental Protection Agency's ability to ensure the safety of chemical substances in commerce by considering developments in the state of science and regulatory policy in the U.S. and abroad that have occurred since the TSCA was enacted;
2. Encourages public confidence in, and broad stakeholder understanding of, federal chemical control authorities and regulatory policies and practices;
3. Recognizes the critical role that chemical substances play in all aspects of contemporary society;
4. Maintains the nation's international competitiveness;
5. Acknowledges and accounts for the considerable investment of resources required to develop and maintain a world-class regulatory system;
6. Leverages the extensive and growing wealth of governance experience and credible scientific data and information on chemical substances being developed in the European Union, Canada, and other countries;
7. Incorporates U.S. obligations under international treaties;
8. Provides the public with useful and relevant information on chemical safety, product safety, and chemical risk management; and
9. Provides appropriate intellectual property protections to entities investing in new science and innovation.

[2] The group included:

- James V. Aidala, who is now Senior Government Consultant, Bergeson & Campbell, P.C., Washington, D.C. Aidala served as Assistant Administrator (AA) for the Office of Prevention, Pesticides, and Toxic Substances (OPPTS) (now the Office of Chemical Safety and Pollution Prevention (OCSPP)) under the Clinton Administration from 2000 until the end of the Administration in 2001. Prior to serving as AA, he was an Associate AA for OPPTS from 1993 until 2000.
- Charles M. Auer, who was the former Director of EPA's Office of Pollution Prevention and Toxics (OPPT) and currently is President of Charles Auer & Associates, LLC.
- Lynn R. Goldman, M.D., M.P.H., who is Dean of the George Washington University School of Public Health and Health Services. Dr. Goldman served as AA for OPPTS from 1993 until 1999.
- James B. Gulliford, who is the Executive Director of the Soil and Water Conservation Society. Gulliford served as AA for OPPTS from 2006 until 2009.

[3] *See* EPA, 2006 Inventory Update Reporting: Data Summary (Dec. 2008), available at http://www.epa.gov/iur/pubs/2006_data_summary.pdf.

[4] EPA Inspector General, EPA Needs a Coordinated Plan to Oversee Its Toxic Substances Control Act Responsibilities, Report No. 10-P-0066 (Feb. 17, 2010), available at http://www.epa.gov/oig/reports/2010/20100217-10-P-0066.pdf.

[5] *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991).