

**Unique Pollution Control Politics?:  
US Drinking Water Policy, 1970-1996**

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### **Abstract**

During the 1980s and early 1990s, the US Environmental Protection Agency proposed to reform federal environmental regulation around “risk management” principles that stressed pollution prevention, better priorities, and cost control. In spite of the fact that risk management were strongly supported by three successive presidential administrations, only one major federal statute – the Safe Drinking Water Act (SDWA) Amendments of 1996 – was developed around these principles. The purpose of this paper is to understand why Congress succeeded in reforming the SDWA around risk management principles at a time when legislative reform of other federal pollution control policies remained stalled. Through a historical analysis of federal drinking water politics between 1970 and 1996, it is concluded that the somewhat unique politics surrounding the drinking water issue enabled risk management principles to serve as a “persuasive discourse” that bound together key interests within the policy community.

The Safe Drinking Water Act (SDWA) has been given little attention by scholars of US environmental policy. With the exception of an occasional law review article<sup>1</sup> and legislative overview written for public health professionals,<sup>2</sup> little has been written about this important piece of pollution control legislation. The lack of scholarly attention to drinking water politics stands in sharp contrast to issues such as air pollution,<sup>3</sup> wastewater treatment,<sup>4</sup> and pesticides regulation,<sup>5</sup> which have received much more extensive treatment.

This scholarly omission is noteworthy given that the SDWA has undergone a substantial and somewhat unique transformation since it was passed into law four decades ago. Originally enacted in 1974, the law underwent major amendments in 1986 and 1996. The 1996 amendments are particularly noteworthy because they occurred at a time when congressional gridlock did not allow many new environmental statutes to be passed.<sup>6</sup> Furthermore, the 1996 amendments appear to reflect a change in philosophy substantial enough to cause one legal scholar to call the SDWA “the first major pollution control program to be reevaluated comprehensively, reformed, and reauthorized since the first environmental decade ended in 1980.”<sup>7</sup>

The reformation of US drinking water policy became possible in large part because Congress united around a legislative solution rooted in the “risk management” policy paradigm. Originally developed in a series of articles and EPA reports completed during the 1980s and 1990s, risk management stressed three overarching elements: 1) pollution prevention rather than post-hoc abatement, 2) public involvement and education, and 3) priority-setting based in a careful

balancing of costs against comparative assessments of the risks posed by various environmental threats.<sup>8</sup> In the early 1990s, risk management principles received bipartisan support and, for a brief moment in time, appeared to provide a road map for broad reformation of US national environmental policies. By the end of the decade, however, any hope that risk management principles would lead to broad-based policy innovation seemed lost. Looking back on the 1990s, Christopher Klyza and David Sousa argued that high hopes for this “new pragmatism,” as they called it, might have been misplaced from the beginning. As they note, environmental debates “engage some of the most ideologically, culturally, and economically contentious domestic issues of our time, and neither the loose public consensus supporting environmental protection nor persuasive arguments that we can achieve higher levels of protection at lower costs can easily contain these conflicts and generate lasting momentum toward a pragmatic next generation policy.”<sup>9</sup> Indeed, to this day the SDWA remains the only federal pollution control law to be substantially revised according to risk management principles.

The purpose of this paper is to explain why the SDWA proved to be the one successful legislative policy reformation rooted in the risk management paradigm. The thesis argued herein is that risk management principles provided a “persuasive discourse” that helped resolve conflict within the drinking water policy community concerning the appropriate balance between public health protection and economic costs. Risk management principles, however, only succeeded in bridging this political gap because of the somewhat unique political circumstances surrounding

drinking water policy, which, unlike other areas of pollution control regulation, garnered little attention from for-profit corporate interests.

The political conflicts that led to the passage of the SDWA Amendments of 1996 developed during the implementation of the original 1974 law. As such, the 1996 SDWA amendments can only be fully understood by tracing the development of the SDWA from its inception. To this end, the next section describes the politics surrounding the formation original SDWA, while section three chronicles the implementation of the Act in the 1980s. Section four describes the development of the risk management policy paradigm between 1985 and 1995. Section five describes the events that lead Congress to accept a risk management approach to drinking water regulation between 1993 and 1996. The concluding section completes the development of the thesis by fully explaining why Congress was able to enact risk management principles in the area of drinking water regulation more easily than in other areas of pollution control regulation.

### **The Formation of the SDWA, 1970-1974**

By the time the SDWA was passed in December of 1974, the federal government had been setting drinking water quality standards for sixty years. In 1914, the US Public Health Service (USPHS) employed authority granted under the Interstate Quarantine Act to enact limitations on the maximum quantity of coliform bacteria allowable in drinking water served in interstate commerce. Through proceedings undertaken in 1925, 1942, 1946, and 1962, the USPHS standards were expanded to include more than twenty contaminants as well as monitoring and

testing requirements for interstate water suppliers. Although the states were not legally bound to enforce USPHS standards against municipal water systems, over time the standards were accepted as important industry benchmarks for the attainment of quality drinking water.<sup>10</sup>

Nevertheless, prior to 1970 drinking water quality was largely treated as a state level issue and, as such, received virtually no attention from the US Congress. The situation changed in 1970, however, when a USPHS study sounded alarm bells concerning the general quality of the drinking water delivered by public water systems. The *Community Water Supply Study* surveyed 969 water supply systems serving eight metropolitan areas and the state of Vermont. The study found that forty-one percent of the drinking water systems in the survey did not meet the USPHS prescribed limitations for one or more contaminants. In addition, ninety percent of the systems in the survey did not meet USPHS criteria for bacterial monitoring. In essence, if the USPHS standards were taken as an appropriate universal metric for drinking water quality, then US water systems were grossly deficient.<sup>11</sup>

Although the study only recommended modest state-level policy changes, some members of the US House of Representatives took the report as a signal that national intervention was required. Representatives Paul Rogers (D-FL) and Howard Robison (R-NY) both introduced legislation designed to provide the newly created Environmental Protection Agency (EPA) with broad authority to set national drinking water standards. As was the case with other pollution control statutes enacted during this time period, Congress seemed prepared to legislate in

spite of the fact that it knew very little about the scope and nature of the drinking water problem.<sup>12</sup> While speaking about the issue in the chambers of the US House, Rep. Robison readily admitted that little was known about the full range of contaminants found in drinking water as well as the long-term health consequences associated with ingesting them. Nevertheless, Robison expressed confidence that “we can know” because “we have priceless expertise and technology in this nation, which can give us answers to these questions.”<sup>13</sup> Therefore, even in a policy context characterized by uncertainty, properly executed science and administrative expertise would yield the desired outcomes.

Three years of additional congressional hearings and new information did little to clarify the nature of the drinking water problem. A 1972 EPA study documented the prevalence of carcinogens in drinking water; a conclusion that was buttressed by hearing testimony highlighting the importance of dealing with chemical contaminants.<sup>14</sup> Additional research by the EPA further indicated that viral contamination of drinking water sources was a potentially serious problem that remained poorly understood.<sup>15</sup> Finally, a Government Accounting Office study provided evidence that bacterial contamination remained a serious problem in spite of the widespread use of chlorine and other disinfectants.<sup>16</sup> Taken together, these findings suggested that the range of contaminants in drinking water was potentially quite vast, that little was known about the relative dangers presented by various contaminants, and that detection and treatment protocols required further research and development.

In spite of these uncertainties, strong support for the legislation eventually emerged within the drinking water policy community. Although both the EPA and the American Water Works Association – The industry’s largest trade association – expressed early reservations concerning the extension of federal involvement, their concerns did not deter the sponsors of the bill, who continued to push for tougher national controls.<sup>17</sup> By the following year, both parties were on board with the idea of federal standards. In hearings held in 1972 and 1973, a coalition of water industry trade and professional associations presented a unified front in favor of the basic concept of federal standards.<sup>18</sup> No environmental advocacy groups testified during the course of the hearings, nor were representatives of any chemical companies or other “polluting” industries present. Indeed, during these years the drinking water policy community resembled an “iron triangle,” consisting mainly of the EPA, the water industry, and policy entrepreneurs in Congress.<sup>19</sup>

With broad political support at hand, Congress passed the SDWA into law in late 1974, handing off substantial implementation responsibilities to the EPA. EPA’s major responsibility was to establish National Primary Drinking Water Regulations. Within 180 days following passage of the law, the Administrator of the EPA was required to promulgate interim regulations based on the 1962 USPHS drinking water quality standards. Congress anticipated, however, that further scientific study would rapidly allow the EPA to replace the interim regulations with a more permanent set of standards. To this end, Congress appropriated funds for the National Academy of Sciences (NAS) to conduct an extensive study of drinking water contaminants that would serve as the basis for formulating more permanent



standards. Within one hundred days after receipt of the NAS study, the Administrator was required to establish permanent National Primary Drinking Water Regulations, which consisted of setting Maximum Contaminant Levels (MCLs) for all known contaminants or, when MCLs proved infeasible, prescribing treatment technologies. Once established, the drinking water regulations were binding on all public water systems in the United States, with state governments expected to assume primary enforcement responsibilities.<sup>20</sup>

### **Confronting Costs: Implementation of the SDWA**

In spite of Congress' vast faith that bureaucratic expertise would yield quick results, implementation of the SDWA progressed slowly and was plagued by controversy. In particular the NAS report, completed in early 1977, created a major stumbling block. Although the report did an adequate job of summarizing existing scientific knowledge, it did not provide what Congress and the EPA had anticipated: a comprehensive set of quantified "safe" levels of exposure to drinking water pollutants that could easily be translated into MCLs.<sup>21</sup> Speaking before Congress the following year, one high-ranking EPA official explained that implementation delays would be inevitable because the NAS study "did not provide the data and guidance the agency expected" and the agency would therefore need to "conduct additional evaluation as part of the process of developing more comprehensive standards."<sup>22</sup>

By that time, however, the EPA was confronting the reality that scientific analysis might not provide clear answers within a reasonable timeframe. This was particularly true in the case of carcinogenic drinking water contaminants such as

synthetic organic chemicals. EPA considered the creation of MCLs for most synthetic organics infeasible because there were potentially thousands of organic compounds in drinking water and few had been adequately tested for carcinogenicity.

Furthermore, like other federal agencies at the time, the EPA generally believed that it was not possible to establish safe thresholds of exposure for carcinogens.<sup>23</sup>

Instead, the agency concluded that the best course of action was to set MCLs for some synthetic organics<sup>24</sup> while also mandating granular activated carbon (GAC) as a treatment technology.<sup>25</sup>

The decision to adopt GAC technology proved highly controversial because it raised questions concerning the appropriate balance between health protection and cost considerations under the vague statutory terms of the SDWA. On the one hand, the act specified that the EPA should set MCLs by first determining the levels at which “no known or anticipated adverse effects on the health of persons occur,” but only required that the final standards be set as close to those levels as was “feasible.” Likewise, treatment technologies should be “necessary ... to prevent known or anticipated adverse effects on the health of persons” but only “to the extent feasible.” In both instances, “feasible” meant employing technologies that were “generally available,” which required “taking cost into consideration.”<sup>26</sup> During the legislative debates over the act, these provisions drew little attention, but putting them into practice in the regulation of synthetic organics caused tremendous conflict between the EPA, the drinking water industry, and certain members of Congress.<sup>27</sup>

EPA officials viewed GAC as the most effective, generally available technology for removing a wide range of organic contaminants from drinking water.<sup>28</sup> The

average cost was estimated at ten dollars per family per year, but costs would not be spread evenly throughout the population. Nevertheless, the EPA believed that Congress intended the costs of treatment to be measured in terms of what was viable for large treatment systems, where the average cost for each customer would be smaller.<sup>29</sup> The synthetic organics regulations, however, inspired a backlash from the drinking water industry that played out as a series of sometimes animated exchanges during congressional hearings. A representative of the National Association of Water Companies questioned the science on which the EPA was basing the regulations, characterizing the health risks associated with some organics as “miniscule ... and poorly proven,” and the GAC treatment technology “uncertain” and likely to cause health hazards of its own.<sup>30</sup> Multiple water industry trade associations further argued that the EPA should focus its resources on setting MCLs and allow appropriate treatment technologies to develop through industry experimentation and innovation.<sup>31</sup> The American Water Works Association echoed these same sentiments and further argued that the EPA should be required to show that the costs of regulation be justified by the benefits.<sup>32</sup> The water industry’s efforts appeared to pay off in 1983, when the EPA set aside the GAC requirement and replace it with a regime that allowed states and water systems to choose from among a range of cheaper treatment alternatives.<sup>33</sup>

While repeal of the GAC requirement was cheered by the drinking water industry, it became controversial in part because it occurred at a time when the EPA was losing credibility with both Congress and environmental groups. Much of the controversy centered around EPA Administrator Anne Burford (1981-83), whose

attempts to cut the agency's budget and reorganize its personnel were viewed as efforts to impede the implementation of the nation's environmental laws. When Buford left office, the public image of the EPA was in decline and an impatient Congress was anxious to get the nation's environmental protection program back on track.<sup>34</sup> This was particularly true in the case of SDWA implementation, where the agency had missed the deadline for completing the permanent drinking water regulations by several years.

The slow implementation of the SDWA was of particular concern to Senator David Durenberger (R-MN), Chair of the Senate Subcommittee on Toxic Substances and Environmental Oversight. During hearings on proposed amendments to the SDWA, Durenberger made clear that he was "scared to death about the chemicals that are out there" and was willing to put public health above considerations of cost.<sup>35</sup> Durenberger was particularly alarmed by EPA data, which suggested that the problem of synthetic organics was potentially vast and the overall effects on human health were still relatively unknown. Amid fears that stalled implementation posed significant risks to human health, a bipartisan group of legislators in both houses of Congress concluded that the answer was highly detailed legislation that imposed strict enforcement deadlines.<sup>36</sup>

The SDWA Amendments of 1986 required the EPA to promulgate revised drinking water regulations for eighty-three specific contaminants the agency had previously identified as immediate candidates for regulation. Within twelve months after passage of the law, the EPA was required to promulgate regulations for nine of these compounds, at least forty compounds within twenty-four months, and all

listed compounds within thirty-six months. During that time, if the EPA concluded that the regulation of substances not contained on the list was “more likely to be protective of public health,” the Administrator could choose to make a maximum of seven substitutions.<sup>37</sup> The Amendments also specified that by January 1<sup>st</sup>, 1988 and in three-year intervals thereafter, EPA be required to work with a special advisory board to compile a list of additional contaminants that constituted candidates for regulation. Within each three-year interval, the EPA was required to regulate at least twenty-five contaminants contained on the list.<sup>38</sup> Finally, the 1986 Amendments also changed the definition of a “feasible” treatment technology from one that was “generally available” to the “best available,” but still required the EPA to take costs into consideration. The Amendments also overturned the EPA’s decision not to recognize GAC as a “feasible” technology for purposes of controlling synthetic organic contaminants.<sup>39</sup>

### **Risk Management: Birth of a Paradigm, 1985-1995**

With the passage of the 1986 SDWA Amendments, Congress appeared to ignore calls from both the EPA and the water industry for a better balancing of cost and safety considerations in the creation of national drinking water standards. Perhaps these concerns were easily ignored given the controversy that surrounded EPA implementation of the SDWA and other pollution control statutes in the early 1980s. Nevertheless, ignoring the need to systematically balance cost and safety considerations did not make these issues go away. When former EPA Administrator William Ruckelshaus was asked to by President Reagan to return to that position in

1983, he stepped into a political context in which discussions of cost were viewed as a direct challenge to established principles of environmental protection.

Ruckleshaus' efforts to change the conversation by framing cost and environmental quality as compatible principles led to the birth of the risk management policy paradigm.

The origins of the risk management paradigm can be traced to an article Ruckleshaus published as he prepared to leave office in 1985.<sup>40</sup> Reflecting on his most recent experiences as Administrator, Ruckleshaus concluded that the regulatory philosophy underlying the environmental policy regime of the 1970s was becoming outmoded. Regulators were unduly focused on mitigating poorly understood and, in some cases, minute carcinogenic risks without regard to cost or the magnitude of the threat.<sup>41</sup> Instead, Ruckleshaus believed the EPA needed to set more effective environmental policy priorities in a world characterized by scarce resources. This was the essence of what Ruckleshaus called "risk management."

Ruckleshaus vaguely stated that risk management involved "adjusting our environmental policies to attain the array of social goods ... that forms our vision of how we want the world to be."<sup>42</sup> Ruckleshaus believed that science and economics were valuable tools that could be employed to help society arrive at the optimal environmental policy priorities. Ultimately, however, legitimate environmental policies could only be fashioned in cooperation with an informed, engaged citizenry. Therefore, under a risk management paradigm, regulators have an obligation to communicate effectively with the public concerning the nature of risks and the

rationale behind policy decisions. As Ruckleshaus put it “transparency is the object of the whole process, and public trust is the ultimate goal.”<sup>43</sup>

Lee Thomas, Ruckleshaus’ successor as EPA Administrator, began the process of systematically putting risk management principles into practice within the agency. For Thomas, the formulation of sound risk priorities first required a systematic comparison of the risks posed by various environmental problems. To this end, the EPA assembled a series of working groups and undertook an ambitious “comparative risk” study that examined and ranked thirty-one environmental problems against four distinct categories of risk: cancer risks, non-cancer health risks, ecological risks, and welfare risks. The study resulted in the issuing of a report in 1987 entitled *Unfinished Business* that provided the EPA with a set of science-based environmental policy priorities that were intended to inform future policy and budgetary planning decisions.<sup>44</sup>

However well intentioned the EPA’s comparative risk project might have been, science-based priorities proved difficult to implement for two main reasons. First, existing legal arrangements did not easily allow for changes in environmental policy priorities. Environmental statutes like the SDWA Amendments of 1986 and the Water Quality Act of 1987 required the EPA to regulate specific pollutants according to fairly rigid timetables. Furthermore, the most significant risks identified by EPA in the comparative risk study were not the American public’s biggest environmental concerns. For instance, whereas the EPA had concluded that indoor air pollution, global warming, and consumer products exposure presented some of the most significant environmental risks, public opinion polls showed that

the American public was more concerned with lower risk problems like hazardous wastes and ambient air pollution, both of which had received more media attention in recent years. These realities suggested that science-based risk priorities could only be realized through a long-run strategy of dialog involving regulators, politicians and citizens.<sup>45</sup>

In spite of these challenges, thought leaders in and around the EPA remained committed to a long-run strategy of implementing risk management principles. In 1990, EPA's Science Advisory Board issued a report entitled *Reducing Risk* in which it highlighted the need for policy reforms rooted in the risk management paradigm. The report was originally intended to be little more than an external review of the agency's scientific conclusions in the *Unfinished Business* report.<sup>46</sup> The text of the report, however, reads more like a position paper than a set of scientific findings. In particular, the report was structured around six recommendations that built on the risk management principles articulated by Ruckleshaus five years earlier: 1) target environmental protection efforts toward opportunities for the greatest risk reduction, 2) work to improve the use of scientific risk assessment, 3) reflect risk-based priorities in strategic planning and budgeting decisions, 4) make pollution prevention the preferred option for reducing risk, 5) work to improve public understanding of environmental risks, and 6) better account for environmental effects in economic analyses.<sup>47</sup>

*Reducing Risk* was released during the tenure of EPA Administrator William K. Reilly, a moderate Republican who came to office in 1989 committed to extending the risk management agenda pioneered by his immediate predecessors.<sup>48</sup> Risk



management principles, however, proved pragmatic and adaptable enough to appeal to moderate Democrats as well. In the mid-1990s the Clinton Administration proposed to “reinvent” federal environmental regulation around a set of ten principles that incorporated elements of the earlier risk management agenda such as cost minimization, pollution prevention, utilization of “the best science and economics,” and procedures for “informing and involving those who must live with [environmental policy] decisions.”<sup>49</sup>

### **Risk Management & the SDWA Amendments of 1996**

The opportunity for the EPA to relate the risk management approach to drinking water regulation came in the early 1990s, when reformation of the SDWA once again became a congressional priority. By that time, members of Congress were becoming concerned with the compliance costs associated with the regulations the EPA was rigidly required to promulgate under the 1986 SDWA Amendments. A series of GAO studies published in 1992 and 1993 found substantial deficiencies in state-level drinking water enforcement, which could be attributed in large part to a lack of available resources.<sup>50</sup> These findings engendered sympathy toward the states from congressional representatives in both parties, who by that time were concerned not only about the cost of drinking water to their constituents, but also the costs created by unfunded mandates.<sup>51</sup>

At the same time that the Washington establishment was turning its attention toward drinking water regulation, several external events helped to dramatize drinking water concerns and keep the issue on the public agenda. A

public health crisis created in 1993 by the contamination of drinking water in Milwaukee helped bring the issue of drinking water standards and enforcement to the attention of the national media.<sup>52</sup> At the same time, environmental interest groups became more involved in drinking water issues than at any previous time since 1970. In 1993, the Natural Resources Defense Council issued a report critiquing the state of US drinking water systems that received national media coverage. The following year, the NRDC issued a second report and joined with a coalition that included five other national environmental advocacy groups to lobby Congress for a stringent drinking water reform bill.<sup>53</sup>

As these events unfolded, committee leaders in Congress indicated that they were prepared to entertain new drinking water policy ideas. In 1994, Rep. Mike Synar (D-OK) commenced SDWA oversight hearings by stating that the rigid requirements contained in the 1986 amendments “in retrospect ... [seem] arbitrary and not well thought out.”<sup>54</sup> In the Senate, efforts to refashion the SDWA were already underway, and risk management ideas were a part of the conversation. Sen. Max Baucus (D-MT) introduced legislation that he characterized as “returning scientific judgment to the [EPA] Administrator in deciding whether to regulate future contaminants.”<sup>55</sup> According to Baucus, the proposed new legislation “differed considerably from the [1986] law” by requiring the Administrator to set risk-based priorities in the regulation of drinking water contaminants.<sup>56</sup> Baucus made clear his belief that the kind of science-based priority setting he favored could “achieve greater public health protection at lower cost.”<sup>57</sup>

The risk-based approach taken by the Baucus bill resonated with a bipartisan group of Senators who were growing frustrated with the status quo in drinking water regulation. In hearing before the Senate Committee on Environment and Public Works, Senator Mark Hatfield (R-OR) testified about the “enormous sentiment” within his state “that we’re spending millions of dollars testing and treating drinking water without relevance to the risk to health.”<sup>58</sup> Senator George Mitchell (D-ME) noted a similar frustration among officials in his state, who were “convinced that the program cost far too much.”<sup>59</sup> Senator Dirk Kempthorne (R-ID) noted that citizens and officials in his state believed that the existing SDWA program was “preoccupied with smaller and smaller parts per billion and reducing risks to zero without regard to costs and without regard to benefits.”<sup>60</sup> In essence, by the early 1990s, members of Congress were speaking about drinking water issues in a new way. Taken together, the statements indicate that legislators were beginning to embrace a key tenet of risk management: cost and health protection need not be considered opposing values when regulators use science-based priority setting to deal with the most serious risks.

All of the aforementioned political circumstances created the ideal opportunity for EPA officials to seek consideration of drinking water policy proposals rooted in the risk management paradigm. In a set of drinking water policy recommendations announced in the fall of 1993, EPA was careful to address the cost concerns advanced by state and local governments. The EPA proposed a scheme for providing long-term financial assistance in the form of grants that would allow states to set up revolving loan funds to provide assistance to water systems. At the

same time, however, The EPA made clear that cost containment also required better priority setting that targeted regulatory resources to the most dangerous pollutants. To this end, the EPA requested that Congress replace the rigid 1986 regulatory requirements with “a more scientific procedure for determining which contaminants the EPA and the states should regulate.”<sup>61</sup> In addition, the EPA proposed that clean up costs could be reduced in the long run through pollution prevention measures such as a source water protection program.<sup>62</sup> In a more elaborate set of recommendations issued in early 1995, The EPA reiterated many of these earlier principles while also stressing that priority setting required public education because “an understanding of drinking water conditions helps rate-payers recognize the need for problem-solving actions by their community system or state.”<sup>63</sup>

The SDWA Amendments of 1996 contained provisions that reflected each of the major risk management principles. First, the new law promoted pollution prevention in several ways. The EPA was required to conduct demonstration projects to determine the best mechanisms for assessing and protecting the drinking water sources of large metropolitan areas. In addition, states were required to have a monitoring program for source waters, and authorized to approve and fund water protection agreements aimed at setting up voluntary partnerships to prevent pollution of drinking water sources.<sup>64</sup>

The SDWA Amendments also reflected the EPAs desire to set risk-based priorities in the regulation of drinking water contaminants. The rigid requirements contained in the 1986 amendments were replaced with a requirement that the EPA

select five new contaminants for regulation every five years.<sup>65</sup> In selecting contaminants for regulation, the Administrator of the EPA was instructed to focus on those “contaminants that pose the greatest public health concern.”<sup>66</sup> Whether selecting a contaminant for regulation or setting maximum contaminant levels, the EPA was required to employ the best peer-reviewed science and to carefully weigh the economic costs against the health benefits accruing from regulation.

Finally, the SDWA amendments contained a range of public notification provisions aimed at educating the public about the quality of drinking water and the efficacy of state and local enforcement. First, local water systems were required to notify consumers of any failure to comply with a federal requirement. In addition, state governments were required to prepare and publish an annual report detailing violations of drinking water regulations by all public water systems within their jurisdiction. Finally, drinking water systems serving more than 10,000 customers were required to prepare and mail to customers an annual consumer confidence report detailing the quality of local drinking water and indicating any health concerns associated with instances of non-compliance.<sup>67</sup>

### **Conclusion**

Within the context of the drinking water policy debate, risk management took on the characteristics of what Louise White calls a “persuasive discourse.” White defines persuasive discourse as a process that unfolds within policy communities as “idea merchants — analysts and political leaders — promote and shape ideas but do so by sharing in a discourse with the public.”<sup>68</sup> In essence, ideas

are persuasive because of the way in which political actors formulate their preferences. Rather than being fixed for all time, political preferences tend to be loosely defined and open to revision in response to new information. Furthermore, preferences often exist within the narrow time and space that surrounds a particular decision-making situation.<sup>69</sup> Therefore, political actors may not have fixed and enduring drinking water policy preferences, but instead may revisit their preferences within the context of each new drinking water policy problem or debate. As political actors confront new situations, they “exchange information, worry about policy issues, and change their minds in the process of formulating policy.”<sup>70</sup> New decision-making situations thus create windows of opportunity for policy entrepreneurs to offer ideas that provide new issue definitions and fashion new political coalitions.

The risk management paradigm worked as a persuasive discourse within the context of drinking water policy for a number of reasons. First, risk management provided a way of thinking and talking about environmental policy problems in which health protection and cost were not opposing values. Second, risk management principles achieved a level of bipartisan support that caused them to have staying power within the EPA. Because four successive administrations viewed risk management as an important set of environmental policy planning and priority-setting principles, these ideas remained on the table when a window of opportunity emerged to reconsider the SDWA. Third, risk management was not a fundamental departure from the core principles that motivated the passage of the original SDWA. As the evidence presented in the case study demonstrates, the authors of the SDWA

of 1974 communicated within what John Dryzek calls the “administrative rationalism” discourse.<sup>71</sup> In essence, these idea merchants placed faith in science and bureaucratic expertise to find the answers to environmental problems. Risk management, with its emphasis on improved science and economics, was at best a variation of this discourse, modified based on practical experience.<sup>72</sup>

Nevertheless, the factors mentioned in the preceding paragraph do not fully explain why risk management became the guiding philosophy in drinking water policy but not in other areas of pollution control regulation. After all, other environmental statutes like the Clean Air Act and Clean Water Act were likewise formulated within the administrative rationalism discourse, and their implementation forced regulators to confront tradeoffs between health protection and cost.<sup>73</sup> Thus, we must once again return to the question underlying this study: why did the SDWA prove to be the one true legislative policy reformation rooted in the risk management paradigm?

In part, the answer lies within the quote from Klyza and Sousa presented in the introduction to this paper. Unlike more far-reaching laws like the Clean Air Act and the Clean Water Act, the SDWA simply did not engage one “of the most ideologically, culturally, and economically contentious domestic issues of our time.”<sup>74</sup> The SDWA does not directly regulate powerful corporations that emit pollutants into our ambient air and surface bodies of water. Rather, it does no more than set standards for the quality of finished drinking water that comes out of the consumer’s tap. As such, the industry regulated by the SDWA is public water systems, which do not fit the typical profile of a regulated industry. For one thing,

the US public water industry is for the most part not a private, for-profit industry. Rather, the water industry is a decentralized collection of over 49,000 water providers, more than three-fourths of which are public or private, non-profit entities.<sup>75</sup> Furthermore, drinking water is an industry that claims to be in the pollution control business, making the private interests of the regulated industry appear virtually indistinguishable at times from the public interest. Therefore, the textbook image of pollution control politics as a contest between citizen groups and powerful corporate interests does not seem to apply to the case of drinking water regulation.<sup>76</sup>

The data contained in Table 1 seem to support this contention. The table presents a tabulation of witnesses testifying in legislative hearings in three time periods: the years immediately surrounding the passage of the original SDWA (1971-73) and the two major sets of amendments passed in 1986 (1982-85) and 1996 (1991-95) [**Insert table 1 here**].<sup>77</sup> During the first period, Congress was most interested in the policy views offered by two groups: the EPA and members of the water industry. Noticeably absent in those hearings were representatives of non-water industries and citizen groups. During the second period, the scope of conflict expanded to include new groups, but the major new category of participants was representatives of state and local governments, most of whom expressed concerns regarding the costs and regulatory burdens imposed during implementation of the original SDWA. Participation by environmental groups expanded significantly during the second period, most likely because key members of Congress shared their concern with the public health consequences associated with slow



implementation of the SDWA. Participation by non-water industry interests during the second period mainly included representatives of the chemical industry, who were concerned about amendments to the groundwater protection program — a separate portion of the act that did not directly regulate public water systems. During the third time period, testimony by representatives of the EPA, state governments, and the water industry reflected growing concerns over how to achieve public health goals while also containing the costs associated with drinking water regulation.

When the three time periods are collapsed it becomes clear that Congress has historically considered four groups to be the most significant contributors to the formulation of drinking water policy — the EPA, state governments, the water industry, and environmental groups. By the 1980s, three of these groups — the EPA, state governments, and the water industry — had arrived at a broad consensus among themselves that promoting the public interest in drinking water meant balancing public health protection against the costs of compliance. In making their case, however, this “cost coalition,” as they will be referred to from here on, encountered strong opposition from environmental groups and influential members of Congress who viewed cost and health protection as competing values. Thus, even as the cost coalition seemed steadfast in their conviction that costs needed to be brought under control, Congress went in the exact opposite direction with the SDWA Amendments of 1986, imposing substantial new regulatory burdens on the industry with little regard to cost or appropriate priorities. In order to build support for a different approach to drinking water policy, members of the cost coalition

needed a set of ideas and organizing concepts that could be used to persuade political opponents that health protection and cost considerations need not be opposing values. The risk management paradigm helped fill this ideational void. Facing no countervailing arguments from “polluting” industries, members of Congress found it politically acceptable to incorporate risk management principles into the SDWA amendments of 1996.

In conclusion, this study suggests that scholars still have more to learn about the politics of environmental policymaking across specific issue domains. In particular, it must be noted that our impressions of US environmental politics have largely been shaped by case studies of specific policy issue areas in which there is direct conflict between corporate interests and the societal interest in environmental protection. Thus, scholars have learned quite a bit about pollution control laws like the Clean Air Act and Clean Water Act that directly regulate corporations,<sup>78</sup> but have paid less attention to the formulation and implementation of the SDWA, which regulate mainly public and non-profit entities. Likewise, in the area of public lands, scholars have learned quite a bit about conflict-ridden issues such as forest and rangeland management,<sup>79</sup> but have paid much less attention to the management of national parks and wildlife refuges, both of which receive only occasional and intermittent attention from the business sector. Ultimately, researching and comparing a broader range of issue domains is necessary to obtain a thorough understanding of US environmental politics.

<b>Table 1: Witnesses Testifying in Drinking Water Hearings, 1971-1995</b>				
	<b>1971- 1973</b>	<b>1982- 1985</b>	<b>1991- 1995</b>	<b>Total</b>
EPA	11	14	9	34
Other Fed. Agency	7	4	4	15
Congress	9	7	3	19
State Gov.	1	35	26	62
Water Industry	16	26	18	60
Water/Pub. Health Professionals	12	4	1	17
Environmental Groups	0	15	8	23
Other Citizen Groups	3	7	0	10
Non-Water Industries	3	11	0	14
Researchers	6	6	1	13

Source: Congressional Information Service (CIS) hearing abstracts.

## Notes

<sup>1</sup> A. Dan Tarlock, "Safe Drinking Water: A Federalism Perspective," *William and Mary Environmental Law and Policy Review* 21 (1997): 233-263.

<sup>2</sup> Frederick W. Pontius, "History of the Safe Drinking Water Act," in *Drinking Water Regulation and Health* ed. Frederick R. Pontius (New York: Wiley-Interscience, 2003), 71-103.

<sup>3</sup> Charles O. Jones, "Speculative Augmentation in Federal Air Pollution Policymaking," *Journal of Politics* 36 (1974): 438-464; Alfred Marcus, *Promise and Performance: Choosing and Implementing an Environmental Policy* (Westport, CT: Greenwood Press, 1980); Gary C. Bryner, *Blue Skies, Green Politics: The Clean Air Act of 1990 and its Implementation* (Washington, DC: Congressional Quarterly Press, 1995).

<sup>4</sup> Marcus, *Promise and Performance*; Paul Charles Milazzo, *Unlikely Environmentalists: Congress and the Clean Water Act, 1945-1972* (Lawrence, KS: University Press of Kansas, 2006); John A. Hoornbeek, *Water Pollution Policies and the American States: Runaway Bureaucracies or Congressional Control?* (Albany: State University of New York Press, 2011).

<sup>5</sup> Christopher J. Bosso, *Pesticides and Politics: The Life Cycle of a Public Issue* (Pittsburgh: University of Pittsburgh Press, 1987).

<sup>6</sup> See Christopher McGrory Klyza and David Sousa, *American Environmental Policy, 1990-2006: Beyond Gridlock* (Cambridge: MIT Press, 2008).

<sup>7</sup> Tarlock, "Safe Drinking Water," 234.

<sup>8</sup> For a good general summary of the risk reduction approach, see F. Henry Habicht II, "EPA's Vision for Setting National Environmental Priorities," in *Worst Things First: The Debate Over Risk-Based National Environmental Priorities* ed. Adam M. Finkel and Dominique Golding (Washington, DC: Resources for the Future, 1994), 34.

<sup>9</sup> Klyza and Sousa, *American Environmental Policy*, 6.

<sup>10</sup> For a good overview of the history of the USPHS drinking water standards, see Daniel A. Okun, "Drinking Water and Public Health Protection," in *Drinking Water Regulation and Health* ed. Frederick W. Pontius (New York: John Wiley and Sons, 2003), 14-16.

<sup>11</sup> US Public Health Service, *Community Water Supply Study: Analysis of National Findings*, (Washington, DC: Bureau of Water Hygiene, 1970).

<sup>12</sup> Charles O. Jones, "Speculative Augmentation," 449-450. Jones notes, for instance, that a lack of knowledge concerning air pollution didn't impede the passage of the Clean Air Act Amendments of 1970.

<sup>13</sup> Statement reprinted in US Congress, House, Subcommittee on Public Health and the Environment of the Committee on Interstate and Foreign Commerce, *Safe Drinking Water: Hearings before the Subcommittee on Public Health and the Environment*, 92d Cong., 1st Sess., 1979, 64.

<sup>14</sup> US EPA, *Industrial Pollution of the Lower Mississippi River in Louisiana* (Region VI, Surveillance and Analysis Division, 1972); See also US Congress, Senate, Committee on Commerce, *Potable Waters: Hearing before the Committee on Commerce*, 92d Cong., 2d Sess., 1972, 107-110 (Statement of Leonard B. Dworsky); US Congress, Senate, Subcommittee on Environment of the Committee on Commerce, *Safe*

*Drinking Water Act of 1973: Hearing before the Subcommittee on Environment*, 93d Cong., 1<sup>st</sup> Sess, 1973, 88-93 (Statement of Ralph Nader).

<sup>15</sup> O.C. Liu, “Effects of Chlorination on Human Enteric Viruses in Partially Treated Water from Potomac Estuary” (Washington, DC: EPA Office of Water Quality, 1970).

<sup>16</sup> US GAO, *Improved Federal and State Programs Needed to Insure the Purity and Safety of Drinking Water in the United States* (Washington, DC: GPO, 1973).

<sup>17</sup> US House, *Safe Drinking Water*, 145-147; 353-357.

<sup>18</sup> US Senate, *Potable Waters*, 68-71; US Senate, *Safe Drinking Water Act*, 125-128.

<sup>19</sup> On the distinction between iron triangles and issue networks, see Hugh Hecl, “Issue Networks and the Executive Establishment,” in *The New American Political System* ed. Anthony King (Washington, DC: American Enterprise Institute, 1978), 87-124.

<sup>20</sup> *Safe Drinking Water Act of 1974*, Public Law 523, 93d Cong., 2d Sess. (December 16, 1974).

<sup>21</sup> National Academy of Sciences, *Drinking Water and Health, Vol. 1* (Washington, DC: National Academy Press, 1977).

<sup>22</sup> US Congress, Senate, Subcommittee on the Environment and Pollution of the Committee on Commerce, *Safe Drinking Water Act Oversight: Hearing before the Subcommittee on the Environment and Pollution*, 95<sup>th</sup> Cong., 2d Sess., 1978, 6 (Statement of Thomas C. Jorling).

<sup>23</sup> Victor J. Kimm, Arnold M. Kuzmack, and David W. Schnare, “Waterborne Carcinogens: A Regulator’s View,” in *The Scientific Basis of Health and Safety Regulation* ed. Robert W. Crandall and Lester B. Lave (Washington, DC: Brookings, 1981), 231.

<sup>24</sup> Specifically, EPA set an MCL for trihalomethanes: a category of synthetic organics that developed as a byproduct of chlorine disinfection. See US EPA, National Interim Primary Drinking Water Regulations: Control of Trihalomethanes in Drinking Water, 44 FR 68624 (1979).

<sup>25</sup> US EPA, Control of Organic Chemical Contaminants in Drinking Water, Proposed Rule, 43 FR 5756, 5769 (1978).

<sup>26</sup> *SDWA of 1974*, 3-4.

<sup>27</sup> The notion that vague legislation turns regulatory agencies into arenas of conflict is by no means new to scholars of regulatory politics. See Theodore J. Lowi, *The End of Liberalism* 2<sup>nd</sup> ed. (New York: WW Norton, 1979).

<sup>28</sup> Kimm, et. al., “Waterborne Carcinogens,” 241.

<sup>29</sup> US EPA, National Interim Primary Drinking Water Standards, 40 FR 59566, 59569 (1975).

<sup>30</sup> US Congress, House, Subcommittee on Health and the Environment of the Committee on Interstate and Foreign Commerce, *Federal Safe Drinking Water Act – Oversight: Hearings before the Subcommittee on Health and the Environment*, 95<sup>th</sup> Cong., 2d Sess., 1978, 3-4 (Statement of Henry S. Patterson).

<sup>31</sup> *Ibid.*, 6 (Statement of Foster S. Burba on behalf of the Coalition for Clean Water); US Congress, Senate, Subcommittee on Toxic Substances and Environmental Oversight of the Committee on Environment and Public Works, *Safe Drinking Water: hearings before the Subcommittee on Toxic Substances and Environmental Oversight*,

- 97<sup>th</sup> Cong., 2d Sess., 1982, 3-4 (Statement of the National Association of Water Companies).
- <sup>32</sup> Senate, *Safe Drinking Water*, 14.
- <sup>33</sup> US EPA, National Interim Primary Drinking Water Regulations: Trihalomethanes, Final Rule, 48 FR 8406 (1983).
- <sup>34</sup> Richard A. Harris and Sidney M. Milkis, *The Politics of Regulatory Change: A Tale of Two Agencies* 2nd edition (New York: Oxford University Press, 1996), 254-256; Larry Mosher, "The Continuing "Emasculation" of the EPA," *Ambio* 12 no. 3-4 (1983): 216.
- <sup>35</sup> US Congress, Senate, Subcommittee on Toxic Substances and Environmental Oversight of the Committee on Environment and Public Works, *Safe Drinking Water Amendments of 1985: Hearings before the Subcommittee on Toxic Substances and Environmental Oversight*, 99<sup>th</sup> Cong., 1<sup>st</sup> Sess., 1985, 14.
- <sup>36</sup> Jill Ketcham-Colwill, "Safe Drinking Water Law Toughened," *Environment* 28 no. 7 (1986): 4-5.
- <sup>37</sup> *Safe Drinking Water Act Amendments of 1986*, Public Law 339, 9<sup>th</sup> Cong., 2d Sess. (June 19<sup>th</sup>, 1986), 2.
- <sup>38</sup> *Ibid.*, 3.
- <sup>39</sup> *Ibid.*, 4.
- <sup>40</sup> William D. Ruckleshaus, "Risk, Science, and Democracy," *Issues in Science and Technology* 1 (Spring 1985): 19-38.
- <sup>41</sup> *Ibid.*, 25.
- <sup>42</sup> *Ibid.*, 31.
- <sup>43</sup> *Ibid.*, 35.
- <sup>44</sup> US EPA, *Unfinished Business: A Comparative Assessment of Environmental Problems, Overview Report* (Washington, DC: US EPA, 1987).
- <sup>45</sup> Former EPA staffer Daniel J. Fiorino presents a good analysis of the problems associated with implementing risk-based priorities. See his article "Can Problems Shape Priorities: The Case of Risk-Based Environmental Planning," *Public Administration Review* 50 (1990): 82-90.
- <sup>46</sup> US EPA, Science Advisory Board, *Reducing Risk: Setting Priorities and Strategies for Environmental Protection* (Washington, DC: EPA, 1990), ii.
- <sup>47</sup> *Ibid.*, 6.
- <sup>48</sup> For a good discussion of Reilly's time at EPA, see Richard A. Harris and Sidney M. Milkis, *The Politics of Regulatory Change: A Tale of Two Agencies*, 2<sup>nd</sup> edition (New York: Oxford University Press, 1996), 338-340.
- <sup>49</sup> National Performance Review, *Reinventing Environmental Regulation* (Washington, DC: National Performance Review, 1995), 6.
- <sup>50</sup> See in particular US GAO, *Drinking Water: Widening Gap between Needs and Available Resources Threatens Vital EPA Program* (Washington, DC: GAO, 1992); US GAO, *Drinking Water: States Face Increased Difficulties in Meeting Basic Requirements* (Washington, DC: GAO, 1993).
- <sup>51</sup> These sentiments were expressed in several congressional hearings. See US Congress, House, Subcommittee on Energy and the Environment of the Committee on Energy and Commerce, *Protection from Drinking Water Contamination: Hearings*

before the Subcommittee on Energy and the Environment, 102d Cong., 1<sup>st</sup> Sess., 1991; US Congress, Senate, Committee on Environment and Public Works, *Safe Drinking Water Act Amendments of 1993: Hearings before the Committee on Environment and Public Works*, 103d Cong., 1<sup>st</sup> Sess., 1993.

<sup>52</sup> Robert S. Raucher, "Public Health and Regulatory Considerations of the Safe Drinking Water Act," *Annual Review of Public Health* 17 (1996): 185.

<sup>53</sup> Frederick W. Pontius, "History of the Safe Drinking Water Act," in *Drinking Water Regulation and Health* ed. Fredrick W. Pontius (New York: Wiley-Interscience, 2003), 85-87.

<sup>54</sup> US Congress, House, Subcommittee on Environment, Energy, and Natural Resources of the Committee on Government Operations, *Impact of Safe Drinking Water Act Regulations on Small Drinking Water Systems: Hearing before the Subcommittee on Environment, Energy and Natural Resources*, 103<sup>rd</sup> Cong., 2d Sess., 1994, 2.

<sup>55</sup> US Congress, Senate, Committee on Environment and Public Works, *Safe Drinking Water Act Amendments of 1993: Hearings before the Committee on Environment and Public Works*, 103d Cong., 1<sup>st</sup> Sess., 1993, 2.

<sup>56</sup> *Ibid.*

<sup>57</sup> *Ibid.*, 3.

<sup>58</sup> *Ibid.*, 4.

<sup>59</sup> *Ibid.*, 5.

<sup>60</sup> *Ibid.*, 8.

<sup>61</sup> US EPA, *Administration Recommendations for Safe Drinking Water Act Reauthorization* (Washington, DC: Office of Water, 1993), 1.

<sup>62</sup> *Ibid.*, 4.

<sup>63</sup> US EPA, *Strengthening the Safety of our Drinking Water: A Report on Progress and Challenges and an Agenda for Action* (Washington, DC: Office of Water, 1995), 10.

<sup>64</sup> *Safe Drinking Water Act Amendments of 1996*, Public Law 182, 104<sup>th</sup> Cong., 2d Sess., (August 6, 1996), 60-63.

<sup>65</sup> *Ibid.*, 6.

<sup>66</sup> *Ibid.*, 7.

<sup>67</sup> *Ibid.*, 27-29.

<sup>68</sup> Louise G. White, "Policy Analysis as Discourse," *Journal of Policy Analysis and Management* 13 (1994): 516. White's basic definition of persuasive discourse describes a process that has been documented in a number of prominent policy studies. See, for instance Martha Derthick and Paul J. Quirk, *The Politics of Deregulation* (Washington, DC: Brookings Institution, 1985); Hugh Hecl, *Modern Social Politics in Britain and Sweden: From Relief to Income Maintenance* (New Haven: Yale University Press, 1974); John Kingdon, *Agendas, Alternatives, and Public Policies*, 2<sup>nd</sup> edition (New York: Harper Collins, 1995); Paul A. Sabatier, "An Advocacy Coalition Framework for Policy Change and the Role of Policy Oriented Learning Therein," *Policy Sciences* 21 (1988): 129-168.

<sup>69</sup> White, "Policy Analysis," 516;

<sup>70</sup> White, "Policy Analysis," 515. This view of preference formation is most closely associated with decision theorists writing in the bounded rationality tradition. See

James G. March and Johan P. Olsen, *Rediscovering Institutions* (New York: Free Press, 1989).

<sup>71</sup> John S. Dryzek, *The Politics of the Earth: Environmental Discourses* 2<sup>nd</sup> edition (Oxford: Oxford University Press, 2005), 75-98.

<sup>72</sup> Bruce A. Williams and Albert R. Matheny refer to administrative rationalism as the “managerial language” in their study of US hazardous waste regulation. Their work supports my contention that risk management is mainly a variation on this discourse. See their book *Democracy, Dialogues, and Environmental Disputes: The Contested Languages of Social Regulation* (New Haven: Yale University Press, 1995), 19.

<sup>73</sup> For a well-developed case study that profiles how these issues played out within the context of air quality regulation, see Brian J. Cook, *Bureaucratic Politics and Regulatory Reform: The EPA and Emissions Trading* (New York: Praeger, 1988).

<sup>74</sup> Klyza and Sousa, *American Environmental Policy*, 6.

<sup>75</sup> US EPA, *Community Water System Survey: Overview* (Washington, DC: EPA Office of Water, 2006), 7-9.

<sup>76</sup> By “textbook image,” I literally mean the image of US environmental politics described in undergraduate textbooks. See in particular Walter A. Rosenbaum, *Environmental Politics and Policy* 9<sup>th</sup> edition (Washington, DC: Congressional Quarterly Press, 2014), 44-62; such impressions, however, are also received when one reads some empirical case studies of environmental policy. See Bosso, *Pesticides and Politics*; George A. Gonzalez, *Corporate Power and the Environment: The Political Economy of US Environmental Policy* (Washington, DC: Rowman and Littlefield, 2001).

<sup>77</sup> Congressional Information Service legislative histories were used to identify the congressional hearings that were most relevant to the passage of each law. Though not a perfect reflection of the range of stakeholders engaged in a particular policy issue, testimony in hearings indicates that members of Congress believe a particular group can contribute important political or policy information. On this point, see Kevin M. Leydon, “Interest Group Resources and Testimony at Congressional Hearings,” *Legislative Studies Quarterly* 20 (1995): 431-439.

<sup>78</sup> See the sources cited in notes 3 and 4.

<sup>79</sup> Christopher McGrory Klyza, *Who Controls Public Lands?: Mining, Forestry, and Grazing Policies, 1870-1990* (Chapel Hill: University of North Carolina Press, 1996); Martin Nie, *The Governance of Western Public Lands: Mapping its Present and Future* (Lawrence: University Press of Kansas, 2008).