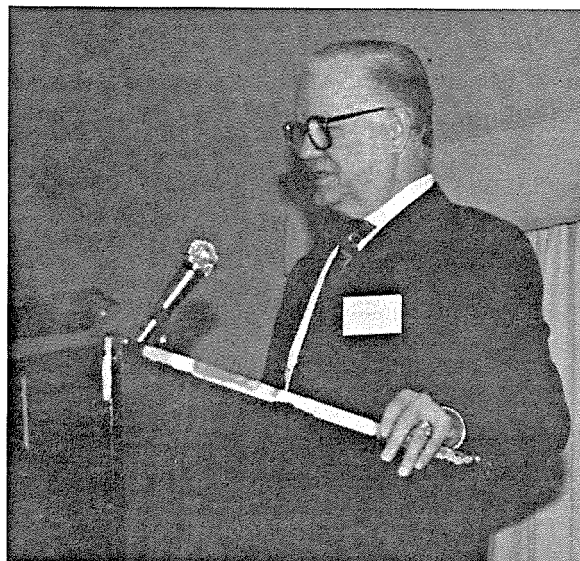


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OVERVIEW OF FEDERAL WATER QUALITY LAWS AND REGULATIONS

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HISTORY

Today I'll begin by providing a bit about the history of water quality law to put into perspective what I will later say about current laws and regulations. Federal water pollution control began with a 1956 statute calling for a Publicly Owned Treatment Works (POTW) Construction Grant Program. This water pollution control program predates programs on which the media has focused when discussing environmental legislation. The 1965 Water Quality Act set in motion the development of state and federal water quality standards. The act was based on a constitutional provision that relates to interstate commerce. Therefore, the original Water Quality Act was applicable to interstate waters only. The law's focus had to be inter-

state commerce because it was that part of the U.S. Constitution upon which the federal action was founded.

Water quality standards are comprised of three parts. The first concerns criteria relating to various water uses without regard to specific locations. Those criteria led to the so-called green book, blue book, red book, and gold book—the water quality criteria books issued by federal agencies. The criteria apply to municipal use for human consumption, industrial use, agricultural use, cooling water, navigation and so on. Secondly, each state is required to classify its surface waters as to intended uses, whether they are for municipal water supply, industry, irrigation, navigation, hydro-power, fisheries or so on. Thirdly, an implementation plan is developed in which states propose how

they will achieve the required water quality standards for various uses. Implementation plans were subject to approval by the Federal Water Pollution Control Administration, which subsequently passed them to the Secretary of the Interior for approval.

It is not often remembered that federal water pollution control was initially housed in the old Department of Health, Education, and Welfare. It was moved to the Department of Interior and remained there until the creation of the Environmental Protection Agency (EPA).

One of the important issues in the 1960s regarding water quality was non-degradation. The original policy statement on non-degradation was issued by Stewart Udall largely at the urging of the National Wildlife Federation. (In those days we called environmentalists the "fin and feathers people"—those interested in fishing or hunting.) The non-degradation statement was a major federal/state controversy in the late 1960s and referred to water that was above the quality specified in the water quality standards. For water below the quality intended to be achieved under the water quality standards, there was wasteland allocation. All who deal with water quality today know that those two concepts still exist in the administration of water quality standards.

Congress became disenchanted with the progress being made under the Water Quality Act of 1965. As is usually the case with legislators, they think they solve problems by passing laws. They passed the act in 1965; in 1967 they amended it slightly, and by 1969 they were wondering why water quality had not yet improved. It had taken 100 years to degrade our water to that point, but Congress wanted to solve the problem in two to four years, which is about their attention span since they run for office every two years. So Congress became dissatisfied and felt water quality standards were not working. Senator Muskie helped lead the charge in the Senate to change the law. After two years of hearings, the 1972 amendments to the Federal Water Pollution Control Act were passed.

The Senate bill that passed was largely the one that emerged as the 1972 amendments. The amendments shifted the constitutional basis for the Federal Water Pollution Control Act from the interstate commerce clause to the general welfare clause. This has led to the confusion we now have over United States waters.

CURRENT FEDERAL WATER QUALITY REGULATION

The current Clean Water Act contains what I call a circular definition—waters of the United States are navigable but nobody has ever been able to define navigable waters for the entire nation accurately and legally. Each state has its own definition. In Texas, navigable waters are those waters and streams that may have flowed at least one inch deep from cut bank to cut bank with a width of at least 30 feet. Thus most of West Texas' dry arroyos are navigable waters. But navigable waters do not mean that much. For all intents and purposes, the federal government has jurisdiction over all surface waters for water quality purposes.

The law has shifted to technology-based effluent standards or effluent limitations applied uniformly to every industrial and agricultural business discharge without regard to water quality. Dischargers must employ the technology to achieve the effluent limitations whether or not it is needed for water quality purposes. Even irrigation return flows that were covered by the original statute were not removed until the 1977 amendments. The law also mandated universal national secondary treatment by publicly owned treatment works be achieved by 1977. Congress made the cities sit still for that by bribing them with 75 percent matching federal grants for publicly owned treatment works construction. This program lasted until the 1981 amendments to the construction grant section of the Clean Water Act.

There were two primary goals in the 1972 statute. One was introduced by California Senator Tunney. He managed to set the interim goal of attaining a level of water quality by 1983 wherever attainable that would allow recreation in and on the water and protect fish, shellfish and wildlife. The law has been applied nearly everywhere without regard to the words "wherever attainable."

A goal instituted at the insistence of Senator Muskie called for the elimination of pollutant discharges by 1985. Originally Muskie had written into the Senate bill a provision mandating a 1985 deadline for the elimination of all discharged pollutants into surface waters. The House had a different view, and the disagreement turned into the longest controversy on any piece of legislation

Overview of Federal Water Quality Laws and Regulations

in the United States Congress up until that time. The House wanted to retain water quality standards in the law. For that reason, we have a peculiar statute that is bifurcated with a series of provisions that relate to technology-based effluent limits and another series of provisions that relate to water quality standards. Those of you who were around then will remember that early administrators of EPA ignored almost completely the water quality standards provisions. Given the law, the EPA had the responsibility for somehow making sense of these two different sets of provisions.

Another provision of the 1972 act created the National Commission on Water Quality and called for developing a 1977 mid-course correction for the Clean Water Act in the event the impact of the 1972 amendments was so severe that the law needed amending. What the National Commission on Water Quality really created was a forum in which the unresolved issues of the 1972 act could be resolved by an ad hoc committee serving for about three years. The commission was comprised of five senators, five members of the House, and five presidential appointees. That meant you had three Democrats from the Senate, three Democrats from the House, two Republicans from the Senate, two Republicans from the House, and since Nixon was president then, there were five Republican presidential appointees. If you can add up the arithmetic, that makes nine Republicans and six Democrats. The general assumption was that because the Republicans had a majority, they would drive the commission. Don't you believe it. If you challenge either congressional house, you will find that the Republicans and the Democrats stick together like glue when the prerogatives of Congress are threatened. When these five presidential appointees tried to push a particular point of view that appeared to be critical of Congress, all ten congressional members lined up together and said, "No, we won't vote that way." Eventually I went to one of the Republican presidential appointees and said, "Dr. Gee, you don't understand how this system works." Everything you say to congressional members sets their teeth on edge. You need to find a way to couch what you are saying. I tutored him on how to handle the politics of a body like this. We ultimately managed to develop a commission report with some recommendations.

Another aspect that complicated the commission's work was the fact that we had four potential presidential contenders on the commission: two Democrats and two Republicans. None wanted to see anyone else get an advantage from the commission's actions. And of course, we had that thoroughly non-political person, Vice President Nelson Rockefeller as chairman, along with Senators Muskie and Baker on the executive committee. Texas Senator Bentsen, who was beginning his early run for the democratic nomination for the Presidency, also served. It was an interesting body that had an impact on the current law.

It is important to remember that the Clean Water Act is not designed to protect human health. It is not designed, like other statutes that have since been passed, with a human health perspective. The law's water quality provisions and the administration of the effluent limitations are designed to protect fish, shell fish, and wildlife. There is only a passing mention of municipal water use and no definition of what water quality is appropriate for municipal use. There is certainly nothing like what has evolved in the Safe Drinking Water Act for protecting water for human consumption. Groundwater was incidentally mentioned, and Congress has never figured out quite how to get its foot in the door on groundwater. Congress will continue to try, although western states generally have managed to keep groundwater out of the Federal Water Pollution Control statutes.

An amendment to the 1981 Clean Water Act substantially revised the POTW Construction Grant Program. Several other statutes concerned with water quality have been passed since the original Federal Water Pollution Control Act, now known primarily as the Clean Water Act. First, the 1974 Safe Drinking Water Act established maximum contaminant levels (MCLs) and goals (MCLGs) for drinking water quality. Amendments to the act have further restricted water quality levels. In many instances the EPA regards MCL or MCLGs as the driving numbers for groundwater remediation under the Resource Conservation and Recovery Act (RCRA). RCRA started as a statute relating to garbage collection but was converted into a hazardous waste disposal act as amendments were added. So now we have a cradle-to-the-grave program for regulating the disposal of hazardous

waste. The requirements regulate the design and construction of treatment, storage and disposal hazardous waste facilities. The program also calls for the elimination of open dumps and governs landfills.

An enormous number of National Priority List (NPL) sites must be remediated under the Superfund program (Comprehensive Environmental Response, Compensation and Liability Act). The EPA has largely consolidated its regulations on water quality for groundwater into the process for remediation of Superfund sites. There are also Superfund amendments, the 1984 re-authorization, and Title III: the Community Right to Know Statute that pose problems in some areas regarding water quality.

THE GOVERNMENTAL PROCESS

I would like to make some pronouncements, which is what one can do when one gets to my age—one can afford to make them. I love to make predictions for at least 25 years in the future because I won't be around when someone wants to come up to me and say I was wrong. Before making those pronouncements I am going to provide a little bit about the reality of the governmental process. Here are a few of my observations.

- No president has had significant impact on major environmental bills whether Democrat or Republican. No president has had a real impact. Executive influence is more often negative rather than positive, preventing or delaying action rather than initiating it. For example, three presidents have vetoed the major water pollution control statutes—Eisenhower in 1956, Nixon in 1972, and Bush in 1986. Thus, presidents generally have not supported the statutes.
- Administrative agency regulations issued pursuant to, or under the authority of a statute, are equal, in legal effect, to the law from which they are derived. A properly promulgated regulation does not have less stature than a law. Regulations are not second-class statutes. They are as binding as the law itself.
- No regulation prepared by an executive agency including EPA can be published in the Federal Register unless it is approved by someone in the Office of Management and Budget (OMB), a part of the White House staff. Don't ever let anyone tell you that an EPA regulation doesn't represent the president's view. It can't get out unless it represents the president's view. Someone from OMB may not be speaking entirely for the president, but he or she presumes to speak for the president. The practical effect is that OMB does speak for the president.
- EPA staff who write environmental regulations have less knowledge and understanding of, and experience in, the activities for which they write regulations than do those in the regulated group or community. Often competent EPA staff are hired away by the regulated groups so that they do not have to put up with their being effective regulators.
- If the EPA administrator does not issue regulations as rapidly as Congress believes he or she should, Congress imposes schedules for issuance of regulations that have come to be known as "hammer" provisions. The new Clean Air Act was signed by the President just today. Those of you who may have some involvement in the Clean Air Act are going to be up to your eyeballs in air toxics within a matter of 18 months to two years. The hammer provisions say that if the EPA doesn't do something by such and such a date, dire consequences will ensue.
- If the EPA administrator issues regulations with which Congress disagrees or the courts reach opinions which Congress believes are incorrect, Congress changes the regulations or the laws to make them consistent with congressional opinions.
- There is a widespread belief in both federal and state governments that demanding laws and regulations are "technology forcing" whereby state and federal governments adopt requirements that cannot be met with any known technology. In other words, regulations can be imposed for which there is no technology to achieve compliance. The statute's mere existence will guarantee the development of the technology. It's as though Alexander Graham Bell were under a congressionally mandated deadline to produce the

Overview of Federal Water Quality Laws and Regulations

telephone. There are those, like Senator Muskie's assistant, Leon Billings who are firm believers in this result. When I see Leon occasionally today he tells me, "See, I told you we'd develop the technology." In some instances, of course, we have.

Several publications are worth reading on this subject. "Environmental Russian Roulette" appeared in the August 19, 1990, issue of *Water and Environment Technology*, a new publication of the Water Pollution Control Federation. The article describes the difficult regulations being proposed by the EPA through the 1976 Resource Conservation Recovery Act and the impossibility of fixing limits at or below the detection level. "Technologies Risk List Assessment Distortions" was written by Dr. J.H. Lehr, an active member of the National Waterwell Driller's Association and a prime mover in the development and passage of the Safe Drinking Water Act. Dr. Lehr makes the point that regulators have gone overboard with controlling toxics, particularly under the Safe Water Drinking Act in the development of which he was influential.

Recently, on October 9, 1990, the EPA proposed a final agency lead strategy directed toward the elimination of lead uses in the United States that may have adverse environmental consequences. This strategy includes testing drinking water at the tap for lead. A statute restricting lead in drinking water at the tap did not pass both houses of Congress but it did pass the Senate Committee on Environment and Public Works. The reason I call attention to these documents is that there is a continuing trend to achieve the impossible in water quality matters and particularly in water quality regulations.

PREDICTIONS FOR THE FUTURE

I believe some principles, trends or consequences can be perceived from the past twenty years of environmental laws and regulations that will be applicable in the foreseeable future.

- Environmental regulations will continue to become more restrictive and more specific. Numerical limits on permissible discharges of

pollutants will become lower and cover more pollutants. Public demand and congressional response will mandate the changes.

- Public fears rather than scientific certainty will dominate new areas of regulation and generate legislation and regulations that will narrow the discretion of governmental administrators and the range of compliance choices available to the regulated groups.
- Those in the regulated groups who desire voluntarily to comply with environmental regulations will be increasingly frustrated with the number, length and complexity of new regulations and will succumb ultimately more and more to what I call the "Income Tax Syndrome"—I'll just do the best I can and see if they ever catch me!

With specific reference to those statutes and regulations for water, the 1990s will, I believe, see the following:

- Expansion of the number of effluent limits on discharges from POTWs to include any chemical or substance of concern for the protection of fish, shellfish and wildlife that may reach an individual treatment plant from household wastewater, industrial discharges subject to pretreatment effluent limits, and stormwater infiltration or runoff. At a minimum, POTW limits will be prescribed for all "priority pollutants" and "toxics in toxic amounts" even below the detection limit. I am associated with the city of Detroit where I have been working for eleven years with the city's Wastewater Treatment Plant. The state of Michigan has proposed a permit for Detroit that would require limits on mercury and cadmium ten orders of magnitude below the detection limit by any known methodology. There will be a provision that indicates if the detection limit is reached in the effluent from the POTW, it is an automatic violation and the city should mail a \$25,000 per day check to the Michigan Department of Natural Resources. The reason the permit is now in Federal District Court is because there are 18 other pollutants the state wishes the city to monitor during the five-year permit with the

- obvious intent to add numerical limits in the next permit.
- Technology-based effluent limits will be prescribed for smaller and smaller groups in the standard industrial classification (SIC) system of the Department of Commerce; these limits will cover every chemical or substance of concern for the protection of fish, shellfish and wildlife and "toxics in toxic amounts"; pretreatment effluent limits will be as strict as those for direct discharge, that is, "best available technology economically achievable" (BAT), wherever applicable.
 - Use of calculated effluent limits derived from state adopted water quality standards, including those derived from state compliance with the EPA published strategy for stormwater control and treatment, will expand significantly. Such an approach avoids the procedural due process required for "best practicable control technology currently available" (BPT), "best conventional pollutant control technology" (BPCT), and BAT prescribed in the Clean Water Act, and no "economic achievable" determination is necessary.
 - Municipal and industrial treated wastewater dischargers will be required to provide state and federal regulators "Pollutant Mass Balance Reports," recording the volume of every pollutant required to be identified in the treatment plant influent and documenting its ultimate proportionate alternation, disposition in the wastewater discharge, emission to the air, and disposal in the sludge or ash. Influent pollutant volumes will be required to balance, as nearly as possible, volumes disposed into the air, water, or ground.
 - Congressional efforts to fashion a groundwater pollution control statute will continue and will ultimately succeed. The most likely first successful step will be some scheme for a comprehensive groundwater quality inventory, followed with attempts to establish groundwater quality standards. The number of "sole source aquifers" designated under the Safe Drinking Water Act will continue to increase.
 - Control of water pollution will lead ultimately to schemes for water quantity allocation where supplies of good quality water for desired uses are short. Surface water quantity will be controlled separately from, and before, groundwater use.
 - Non-point source pollution controls for agricultural and urban stormwater runoff will become more precise and specific, probably emphasizing pollution prevention more than treatment after contamination.
 - Treatment for all municipal water supplies will become more sophisticated and expensive; MCLs under the Safe Drinking Water Act will become more numerous and more restrictive. Disposal of water supply treatment plant sludge will become more difficult and more expensive.
 - Municipal and industrial water reuse will expand because of the cost of higher levels of treatment of wastewaters; if concentrations of sodium chloride can be controlled adequately, human reuse of human wastewater will become a viable alternative in water-short areas and where treated wastewater is of higher quality than the receiving water.
 - Superfund sites on the NPL will continue to contaminate groundwater (and maybe surface water, also) far into the 21st century because of the large number of sites (nearly 1200), the procedures being followed to select the remediation method, and the substantial per site costs being incurred.
 - Because of groundwater contamination fears, landfilling of hazardous waste will be terminated. Incineration at sites remote from population centers or in floating incinerators at some distance offshore are the most likely substitutions for landfilling.
 - Waste reduction, recycling and reuse are the most likely methods to reduce the volume of non-hazardous waste going to landfills, thus avoiding any substantial contamination of groundwater likely to occur from solid waste disposal.

Thank you for the opportunity to participate in this significant conference.