INCREASING REGULATIONS RESULT IN DECREASING OPERATIONAL EFFICIENCY

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ABSTRACT

In 1972, the Congress of the United States of America passed major legislation called the Clean Water Act, which required all wastewater discharges to meet minimal standards. The Clean Water Act promoted efficiency and cost effectiveness.

The Gulf Coast Waste Disposal Authority was created in 1969 by the Legislature of the State of Texas to, among other things, own and operate wastewater disposal systems which would be protective of public health, "terrestrial and aquatic life, the operation of existing industries and the economic development of the state".

Since enactment of the Clean Water Act, other pieces of legislation, rulings by courts of law, and rules established by the U.S. Environmental Protection Agency have thwarted many efforts to operate efficient and cost-effective wastewater treatment facilities. This paper will discuss several of the laws and rules that have discouraged efficiency and cost effectiveness.

KEYWORDS

Cost effective; disposal; efficiency; legislation; regulations.

INTRODUCTION

Since its inception in 1969, Gulf Coast Waste Disposal Authority (GCA) has been attempting to protect and improve the environment. The staff has sought this goal while working within the provisions of the enabling legislation that created and defined GCA. And of course we must comply with state and federal regulations which control all waste management operations. In this discussion, the authors will attempt to show that quite often new or expanded regulations aimed at improving a situation may actually interfere with effective and efficient treatment and disposal systems and, in some cases, result in lowering overall environmental conditions.

Gulf Coast Waste Disposal Authority (GCA) was created in 1969 by an act (Chapter 409, Acts, 1969) of the legislative body of the State of Texas. The creation of GCA was a political reaction in response to known environmental problems in the Houston Ship Channel and Galveston Bay. During the 1960s, the Houston Ship Channel was often described as the "most polluted stream in the United States". While creating GCA as a political subdivision and giving it broad powers and responsibilities, the legislation did not provide funding to carry out any of the responsibilities described in the legislation.
GCA's enabling act did provide for the collection of taxes within its area of jurisdiction; however, voter approval for this taxation was required. When a special election was called to request the powers of taxation, the measure was defeated. Following this defeat, GCA's Board of Directors decided it should concentrate on section 3.14 of the enabling legislation, which provides for the ownership and operation of waste disposal systems.

With the powers to own and operate waste disposal systems and the ability to finance projects with tax-exempt bonds, GCA began contracting with industries to provide centralized wastewater treatment facilities.

In section 1.02, Findings and Declaration of Policy, of the enabling legislation, GCA was directed to provide "coordinated facilities for waste disposal" and to establish policy that would "maintain the quality of waters in the state consistent with...... operating of existing industries, and the economic development of the state".

Between 1971 and 1976, GCA constructed two wastewater treatment facilities specifically designed to treat industrial wastes, and purchased two other existing treatment facilities designed for treating industrial wastes. The two existing facilities purchased by GCA were expanded to provide treatment to other industrial and municipal dischargers whose wastes were compatible. By operating these facilities in an efficient manner, GCA was fulfilling part of the provisions of its enabling legislation.

In 1972, the U.S. Congress passed the Clean Water Act (CWA) (PL 92-500, 1972). The goal of the CWA was to provide for fishable and swimmable waters throughout the United States. This was to be achieved by the establishment of regulations that control the discharge of pollutants to receiving streams.

Included in the CWA is a provision that encourages regional treatment of wastes. Section 103(c) states, "To the extent practicable, waste treatment management shall be on an areawide basis and provide control or treatment of all point and nonpoint sources of pollution”. This provision further provided grant monies for the construction of such treatment plants.

The language in the CWA seemed to be consistent with the language used by the State of Texas in the creation of GCA.

Section 307(b)(1) of the CWA requires the establishment of pretreatment standards for industrial wastes that are discharged to publicly owned treatment works (POTWs). Section 307(b)(1) provides that pretreatment standards "..... shall be established to prevent the discharge of any pollutant through treatment works (as defined in section 212 of this Act) which are publicly owned, which pollutant interferes with, passes through, or otherwise is incompatible with such works. If, in the case of any toxic pollutant under subsection a) of this section introduced by a source into a publicly owned treatment works, the treatment of such works removes all or any part of such toxic pollutant and the discharge from such works does not violate that effluent limitation or standard which would be applicable to such toxic pollutant if it were discharged by such source other than through a publicly owned treatment works, and does not prevent sludge use or disposal by such works in accordance with section 405 of this Act, then the pretreatment requirements for the sources actually discharging such toxic pollutant into such publicly owned treatment works may be revised by the owner or operator of such works to reflect the removal of such toxic pollutant by such works”.

In as much as GCA was created as a political subdivision, it is a public body; therefore, facilities that GCA owns are "publicly owned". The U.S. Environmental Protection Agency (EPA) permitted GCA's facilities as industrial wastewater dischargers. In 1980, GCA and EPA entered into a consent agreement (U.S. District Court, Southern District of Texas, 1981). In the consent agreement, EPA agreed to recognize GCA's facilities as POTWs [paragraph VII(a)] (but would continue to issue an industrial type permit). GCA agreed that its POTWs would be "subject to the general pretreatment regulations" (paragraph VIII(a)).

Using the "removal credits" provision of CWA, section 307(b)(1), which allowed a POTW to revise pretreatment limits to reflect the removal of pollutants by the POTW, GCA continued to provide the same efficient and effective treatment for its industrial dischargers.
In 1986, the Third Circuit Court of Appeals ruled that the removal credits provision of CWA, section 307(b)(1), was invalid until EPA promulgated comprehensive sludge disposal regulations that would insure a treatment process was not simply transferring toxic materials from the water phase to the solid phase and would end up as an environmental problem where sludge disposal occurred (U.S. Court of Appeals, 1986).

Because the court invalidated removal credits, industrial dischargers were required to meet categorical pretreatment limits, which are established by EPA, regardless of the effectiveness of the POTW to which it is discharged. This had a tremendous impact upon GCA’s operations, beginning in 1988.

In 1987, EPA promulgated the effluent discharge limits and pretreatment limits for the organic chemicals, plastics and synthetic fibers category of industries (OCPSF) (USEPA, OCPSF, 1987). In establishing the OCPSF pretreatment limits and discharge limits, EPA assumed that some 64 toxic materials commonly found in OCPSF waste streams would pass through the typical POTW untreated. Therefore, EPA’s pretreatment limits and effluent standards for direct discharge were equal. EPA also determined that biological treatment could achieve the removals required for meeting pretreatment and the direct discharge limits.

In GCA’s case, the wastewater treatment facilities are designed to treat the specific industrial wastes received and to achieve the same removals an industry would be required to achieve before discharge to a receiving stream. When fully implemented, the OCPSF industries discharging to GCA must treat their wastes to direct discharge standard before they can discharge to a POTW, even though the technology they use for achieving pretreatment is exactly the same as the technology used by GCA for treatment.

Faced with the loss of the ability to utilize removal credits, GCA and a major industry at one of its four industrial wastewater facilities agreed it would be absurd for GCA to require the industry to pretreat its waste before discharging to GCA’s POTW when that industry could use the same facility to treat its waste and discharge it as a direct discharger without any additional treatment requirements. GCA sold the POTW to the industry in 1989, thus allowing the industry to continue with the same treatment without the imposition of pretreatment requirements. Selling this facility to an industry removed that facility from consideration as a site to treat additional wastestreams..... the loss of a potential regional treatment plant.

In the remaining three GCA industrial facilities, it was not feasible for any one industry to purchase the facility due to mixture types of wastes or percentage share of use by individual industries. In order for GCA to continue fulfilling the requirements in its enabling legislation, a major change in the federal legislation would be required.

In 1992, GCA obtained special legislation through the U.S. Congress to eliminate the categorical pretreatment requirements, provided certain conditions are met. Public Law 102-389, 106 Stat. 1601 (U.S. Congress, PL 102-389, 1992) provides:

"Notwithstanding section 307(b)(1) of the Federal Water Pollution Control Act, the following limitation to the Gulf Coast Waste Disposal Authority on applicability of pretreatment standards shall apply:

(a) If the conditions of subsection (b) are met, the pretreatment standards promulgated pursuant to section 307(b)(1) of the Federal Water Pollution Control Act shall not apply with respect to any treatment works operated by Gulf Coast Waste Disposal Authority and industrial users of such works.

(b) Subsection (a) shall only be in effect with respect to a treatment works if:

(1) the mass removal of pollutants by such works is equivalent to the removal which would be achieved if the industrial users of such works discharged such pollutants into waters of the United States other than through a publicly owned treatment works and such discharges complied with applicable effluent limitations; and"
(2) the Gulf Coast Waste Disposal Authority has, and is in compliance with, a permit issued under section 402 of the Federal Water Pollution Control Act containing sludge quality numerical limitations for each of the pollutants for which such limitations are established and which would otherwise be required to be treated under the pretreatment standards established under section 307(b) of such Act (or where numerical limitations are not available, a design, equipment, management practice, operational standard, or combination thereof for each such pollutant) developed in accordance with the applicable requirements of section 405(d) of such Act."

By implementing this special provision, GCA is again in a position to provide total treatment for its industrial users when wastes are compatible with the wastewater treatment processes utilized at GCA's POTWs.

Another piece of legislation that has had a major impact upon GCA's operations is the Resource Conservation and Recovery Act (RCRA) (U.S. Congress, PL 94-580, 1976), which includes requirements for solid and hazardous wastes. The major impact of RCRA upon GCA's operations has been the mixture rule. The mixture rule states that when a hazardous waste is mixed with a nonhazardous waste, the entire mixture is then considered a hazardous waste even if the resulting reaction renders the mixture conclusively nonhazardous. In the operation of GCA's facilities, GCA had been utilizing an acidic industrial waste to disinfect a municipal waste stream before it was treated in the POTW. With the ruling that mixtures of characteristically hazardous waste, in our case low pH, were mixed with the nonhazardous municipal waste stream, the mixture could not be treated in a POTW not permitted for treating hazardous waste. At the same time, the acidic industrial waste can be neutralized and treated, and the municipal waste can be disinfected with acid and treated. This ruling has cost GCA and its users for the unnecessary use of chemicals for disinfection and neutralization, and has done nothing to improve the environment.

CONCLUSION

We would say in conclusion that the courts and the regulators are not, in our opinion, purposely setting out to create counter productive requirements. These regulations are put forth with the best possible intent .... to provide for clean air and clean water .... to prevent those few who would pollute-for-profit from getting by with poor environmental practices. The problem is – we long ago accomplished the easy tasks. We have largely done those things with the big, the quick and the visible payoff.

Now we are working on ever more complex concerns; even smaller pieces of the eco-puzzle. Incongruously, the numbers .... the measurements ..... are hugely smaller. Who would have thought ten years ago we would be discussing containment concentrations of parts per quadrillion.

Also, in the United States and around the world, those of us in waste management must deal with more than waste: we must deal just as effectively with the fear and mistrust of the public. It is this political environment which often drives our attempts at environmental management. We recognize that many regulatory decisions today are made, not with research science, but with political science.

REFERENCES