

EVOLUTION OF HAZARDOUS MATERIAL SPILLS REGULATIONS IN THE UNITED STATES

GARY F. BENNETT

Professor of Biochemical Engineering, The University of Toledo, Toledo, Ohio, 43606 (U.S.A.)

and IRA WILDER

Chief, Oil and Hazardous Materials Spills Branch, Municipal Environmental Research Laboratory, U.S. Environmental Protection Agency, Edison, New Jersey, 08817 (U.S.A.)

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Summary

After seven years in the preparation stage, the U.S. Environmental Protection Agency published, on August 29, 1979, its hazardous substances regulations, setting forth which chemicals are considered hazardous to the environment, which are removable if spilled into a water body, and rate of penalties for spilling. This paper reviews the basis of the regulations (the Federal Water Pollution Control Act), the various drafts issued and withdrawn by EPA, the philosophy behind each and lastly details of the final regulations.

Introduction

Finalization by the U.S. Environmental Protection Agency of their hazardous substance regulations in the Federal Register on August 29, 1979 [1], culminated a process begun by Congress in 1972 when it passed the omnibus amendments to the Water Pollution Control Act [2]. Congress expressed its intentions clearly that this bill bring about demonstrable improvements in water quality in the preamble to the Act which states in part:

- “(1) it is the national goal that the discharge of pollutants into navigable waters be eliminated by 1985;
- (2) it is the national goal that when obtainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;
- (3) it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited.”

Most of the provisions of the law are directed towards this goal through the regulation of chronic (continuous) discharge of pollutants from municipal and industrial sources by means of the National Pollutant Discharge Elimination System (NPDES) permit process. Section 311, however, deals specifically with

spills of oil and hazardous polluting substances; it is of particular interest because the preamble to this section states:

“The Congress hereby declares that it is the policy of the United States that there should be no discharges of oil or hazardous substances into or upon the navigable waters of the United States, adjoining shoreline, or into the waters of the contiguous zone.”

This section of the Act required the administrator of the U.S. Environmental Protection Agency (EPA) to develop regulations:

- (1) Designating hazardous substances,
- (2) Determining whether or not the designated hazardous materials can be removed from a watercourse if spilled into it,
- (3) Specifying penalties for discharge of hazardous materials,
- (4) Designating harmful quantities in order to specify a quantity such that spillage exceeding that amount must be reported,
- (5) Specifying spill prevention measures in order to identify procedures, methods, equipment as well as other requirements pursuant to preventing discharges of hazardous materials.

1970 — The beginning

Although the Water Quality Act Amendments passed by Congress in 1972 began EPA's oil and hazardous material role in earnest, the program actually dates back to the 1970 Water Quality Improvement Act [3], in which Section 11 addressed the pollution of navigable water by oil, and Section 12 dealt with hazardous polluting substances. The early operation of EPA under these sections has been described by Thompson and Heitzenrater [4].

The Federal response efforts, at that time, were activated when spill prevention efforts failed and a discharge of hazardous material occurred. The primary co-ordinating link between federal agencies was the National Oil and Hazardous Substances Pollution Contingency Plan [5], which provided for a pattern of co-ordinated and integrated response by departments and agencies of the Federal Government to protect the environment from the damaging effects of spills.*

The earliest of the rules promulgated by EPA dealt with oil and the prevention of pollution thereby. The essence of the regulations published in the Federal Register on December 11, 1973 [6] was the requirement for a company storing oil in excess of specified quantities (which if spilled, could reach a watercourse), to prepare a SPCC (Spill Prevention, Control and Countermeasure) Plan. The intent of the plan was to develop a thoroughly engineered facility, designed not only to prevent oil spills, but in the event of a spill to minimize product loss and environmental impact. Contingency plans, incorporated into the SPCC plan, would outline the response steps to be taken to ameliorate the impact of a spill on the environment and to facilitate clean-up.

*The most recent update of this plan is referenced.

EPA's first proposal

EPA set about the difficult task of complying with the law written by Congress. In August 1974 [7], two of the required regulations were published in the Federal Register as an advance notice of proposed rule making. This proposal dealt with the designation of hazardous materials and their categorization into removable and non-removable groupings. There were approximately 370 chemicals on the list; in this first assessment, all of the chemicals were deemed "not to be removable". The proposed EPA rule, however, stated that a declaration of non-removability did not eliminate the spiller's responsibility to mitigate the effects of a spill of a hazardous material.

Tentative selection criteria used by EPA to list the candidate hazardous chemicals set forth in the August 1974, Federal Register, were as follows:

(1) Any element or compound produced in excess of research quantities possesses sufficient danger potential to be considered as a candidate hazardous substance if it is lethal to: (a) one-half of a test population of aquatic animals in 96 hours or less at a concentration of 500 mg/l or less; (b) one-half of a test population of animals in 14 days or less when administered as a single oral dose equal to less than 50 mg/kg of body weight; (c) one-half of a test population in 14 days or less when dermally exposed to an amount equal to or less than 200 mg/kg body weight for 24 hours; (d) one-half a test population of animals in 14 days or less when exposed to a vapor concentration equal to, or less than 200 cm³/m³ (volume/volume) in air for one hour; or (e) aquatic flora as measured by a 50 per cent decrease in cell count, biomass, or photosynthetic ability in 14 days or less at concentrations equal to or less than 100 mg/l.

(2) To be further considered for designation as a hazardous substance, any element or compound meeting the above criteria must have a reasonable potential for being discharged; i.e. spilled into a water body. Factors being considered in making this evaluation include the production quantities, mode of transportation, handling and storing practices, past spill experience and physical-chemical properties of each substance.

Harmful quantity and rate of penalty

One of the difficult issues required by the law, was for EPA to designate penalty rates for non-removable hazardous substances and the determination of quantities which are deemed to be harmful to public health and welfare.

To assist them in this task, EPA commissioned a study by Battelle Memorial Institute. The Battelle researchers published four technical documents [8] on which EPA could logically base these regulations required by the law. Battelle proposed four separate approaches to determine harmful quantities and set rational rates of penalty for any given non-removable hazardous substance.

1975 proposal

On Tuesday, December 30, 1975, EPA published a lengthy document [9] in the Federal Register proposing its new rules for hazardous substances:

designation, removability, harmful quantities, penalty and rates. The list of hazardous substances was reduced to 306, chosen to a great extent along the toxicological lines as published in August 1974, with minor alterations such as reducing the inhalation criteria cut-off point from 200 to 20 cm³/m³ for one hour. Harmful quantities were based on LC₅₀ ranges (Table 1).

TABLE 1

Harmful quantity determination (Dec. 30, 1975 proposed rules)

Category	LC ₅₀ representative range (ppm)	Harmful quantity (lb. (kg))
A	<1	1.0 (0.45)
B	1-10	10 (4.5)
C	10-100	100 (45)
D	100-500	500 (227)

With regard to potential for discharge, since little data were available on the mode of transportation and handling and storage practices of many substances, these considerations were dropped. Factors used in determining spill potentials were then:

- (1) Past history of spillage,
- (2) Production quantities (if produced in amounts exceeding one billion pounds a year, the potential for spillage is significant),
- (3) Use and distribution patterns,
- (4) Value of the substance (very expensive chemicals are less likely to be spilled than cheap ones).

If a candidate chemical, having been considered as a "designated" hazardous substance because of its toxicity, was produced in amounts less than one billion pounds a year, this substance would be further screened using the other criteria. Pesticides, on the other hand, which are believed to have a high probability for discharge, were maintained on the proposed hazardous substance list regardless of volume of production.

All of the compounds listed were determined by EPA to be non-removable, if they once entered a natural body of water.

In establishing penalties, EPA followed its Congressional mandate to designate:

- (1) a unit of measurement based on the used trade practice for each designated substance,
- (2) a penalty of \$100 to \$1,000 per unit of measurement.

EPA determined that the pound (weight measure) was the only common unit of measurement. The Agency then assigned a base penalty of \$1,000 to be assessed to the designated harmful quantity (Table 1) of chemicals in each category, i.e. the penalty for spilling 100 lb. of materials in category C would be \$1,000 per 100 lb. or \$10 per lb. if EPA determined that the discharge of that amount occurred within a 24-hour period.

EPA proposed to adjust these penalties by multiplying the penalty amount by a series of physical-chemical-dispersal (P/C/D) adjustment factors which reflected the chemical's ability to disperse. These factors ranged from 0.1 to 1.0 based on the chemical's solubility, density, volatility and associated propensity for dispersal in water (Table 2). For example, if one spilled a category C chemical that floated and evaporated, the penalty would then be $\$10 \times 0.1$ or $\$1.00$ per lb. spilled.

Discussed in the notice of proposed rule making, was the fact that Section 311 provided two civil penalty systems to discourage the discharge of a non-removable hazardous substance: (1) discretionary and (2) nondiscretionary. The discretionary penalty was in addition to the possible \$5000 penalty for merely having had a spill of an oil or hazardous material. The discretionary penalty had two levels; EPA referred to these as the high and low penalties, with the high penalty being restricted to cases of gross negligence. The low penalty had a range of \$500 to \$5,000. In the case of gross negligence, the penalty could be as much as \$5,000,000 in the case of discharge from a vessel or \$500,000 in the case of discharge from an on-shore or off-shore facility.

The assessment of a penalty for spilling a non-removable material did not eliminate the discharger's responsibility for mitigating the spill. Vessels and on-shore or off-shore facilities could be liable for mitigation expenses up to limits of \$14,000,000 and \$8,000,000 respectively.

TABLE 2

Physical/Chemical/Dispersal (P/C/D) Adjustment Factors used by EPA to adjust the penalty rate for spilled, non-removable, hazardous chemicals

A definition for each category based on degree of solubility, vapor pressure, etc., is found in the Federal Register, p. 60002 [9].

Material Classification	P/C/D Factor
Insoluble, volatile floater	0.10
Insoluble, non-volatile floater	0.23
Insoluble sinker	0.36
Soluble mixer	0.49
Precipitator	0.62
Soluble sinker	0.75
Soluble floater	0.88
Miscible	1.0

"Final" regulations

It was more than two years before the final regulations appeared [10] on March 13, 1978. In the interim, EPA received numerous comments from industries, environmental groups and concerned citizens, on their 1975 proposed regulations. Many of these specific comments were discussed in the

preamble to the regulations that appeared; some suggestions were accepted and the regulations revised. Moreover, Congress had passed certain amendments to the 1972 water law; those affecting hazardous materials pertained mainly to the penalty structure.

The new "final" regulations were quite similar in concept to the proposed ones, although there were some important modifications:

- (1) The original list of hazardous chemicals was reduced to 271, in addition 28 more were proposed for the first time, creating a total of 298 listed hazardous substances.
- (2) Ten of the substances in the list were deemed to be removable because of their "oil-like" nature.
- (3) The gross negligence requirement for assessment of the high penalty was dropped and the lower penalty limit was raised.
- (4) A new category (X) was added to the A, B, C, D categories of hazardous types; the harmful quantity amount for each category was adjusted from that proposed in 1975 (Table 3).

TABLE 3

Harmful quantity determination (March 13, 1978 "final" rules [10])

Category	Toxicity range (ppm)	Harmful quantity (lb. (kg))
X	0.1	1 (0.45)
A	0.1-1	10 (4.5)
B	1-10	100 (45)
C	10-100	1000 (454)
D	100-500	5000 (2270)

The new penalties were severe. As in the proposed regulation, there was the potential of a \$10,000 fine plus a year in jail for failure to report a spill, i.e. a criminal offense. The penalty for spilling remained at a \$5,000 maximum with the additional fine of \$500 to \$5,000 for non-removable chemicals for less severe violations, but could have risen to \$500,000 for spills from on-shore or off-shore facilities or \$5,000,000 for spills from a vessel. Choice of the high or low penalty was again left to the Administrator of EPA who would make the decision based on the assessment of the following factors:

- (a) the size of the discharge,
- (b) culpability of the owner,
- (c) extent of any mitigation or clean-up effects.

The penalty was to be assessed on a "per pound basis" as in the 1975 proposed regulations. A discharge of a harmful quantity (now 1, 10, 100, 1,000 or 5,000 lb.) would result in a penalty of \$1,000 for each categorical amount — i.e. 1 lb. of material in category X would be assessed at a rate of \$1,000 per lb. while a Category C assessment would be \$1,000 per 1,000 lb.

or \$1 per lb. These amounts would then be multiplied by the appropriate P/C/D factor shown in Table 2. Thus a category X insoluble-sinker (i.e. DDT) would be assessed at a rate of $0.36 \times \$1000$ per lb. = \$360 per lb. For cresol, the fine would be \$1000 per 1000 lb. multiplied by the P/C/D factor of 0.75 yielding \$0.75 per lb. (Table 4).

Even though fined for discharging, a spiller would still have the responsibility of attempting to remove the material from the environment. According to the regulations, only ten of the substances were considered to be actually removable: allyl chloride, amyl acetate, benzene, cyclohexane, ethyl benzene, isoprene, methylmethacrylate, styrene, toluene and xylene. Discharges of the remaining 288 non-removable substances were addressed as follows in the regulations: "The determination that certain designated substances cannot actually be removed by chemical, physical or biological means does not relieve the discharger or third party from damage mitigation liabilities under section 311 (f) and 311 (g) of the Act."

TABLE 4

Rates of penalty for selected spilled hazardous compounds

Chemical	Category	P/C/D factor ^a	Rate of penalty (\$ per lb.)
Acetaldehyde	C	1.00	1.00
Acrolein	X	0.88	880.00
Aluminum sulfate	D	0.62	0.12
Ammonia	B	0.88	8.80
Chlorine	A	0.10	10.00
Cresol	C	0.75	0.75
DDT	X	0.36	360.00
Ferric chloride	C	0.75	0.75
Hydrochloric acid	D	0.75	0.15
Hydrogen cyanide	A	1.00	100.00

^aSee Table 2.

The 1972 law was silent on whether EPA could mitigate the effects of non-removable substances using the revolving fund.* However, the 1977 Clean Water Act [11] specifically authorized the EPA to counteract the impact of non-removable substances and assess the cost to dischargers. Lewis and Tarseg [12] cite examples of applicable costs:

- (1) Containment,
- (2) Measures to warn and protect the public,
- (3) Monitoring of temporary water supplies,

*In Section 311 of PL 92-500, U.S. Congress established a revolving fund to provide resources for the clean-up of oil spills. Congress, of course, intended that money to be recovered from the spiller and the fund be reimbursed.

- (4) Monitoring the spread of pollutants,
- (5) Efforts to raise sunken vessels,
- (6) Emergency treatment facilities,
- (7) Dredging.

The 1977 Act [11] also amended the liability for mitigation charges (Section 311 (f) and 311 (g)). In the 1972 law (PL 92-500), there was a maximum liability of \$100 per gross ton with a \$14,000,000 maximum. This was increased to \$150 per gross ton or at least \$250,000. Special limits were set for inland barges. Clean-up liabilities for on-shore and off-shore facilities were revised to a maximum of \$50,000,000 instead of the \$8,000,000 limit imposed by PL 92-500; the President, however, may lower the maximum for specific categories of facilities. The liability for spillage and clean-up was also extended to the 200 mile limit off-shore. Retained in the final regulations was the 1972 provision that there is no maximum liability in the case of unlawful misconduct or negligence.

Rules challenged

A successful challenge of these regulations in court by the Manufacturing Chemists Association in August 1978, brought EPA's program to a halt. In a decision handed down by U.S. District Judge Vernon in the Western District of Louisiana, the court declared the EPA's final rules invalid. The U.S. District Judge in invalidating the rules said, they were "arbitrary, capricious and contrary to relevant statutory pronouncements" [13]. In his ruling, the Judge noted that the Water Pollution Control Act required EPA to determine those quantities of any hazardous substances, whose discharge at such times, locations, circumstances and conditions, would be harmful to the public health or welfare. He pointed out that a choice of a "one-pound bottle" as the unit of trade was the result of considering things such as packaging, marketing, pricing, and easy use of products—factors that have no relationship to the purpose of the Act.

The Judge also cited EPA for ignoring, in its final regulations, that the harm, that will result from the discharge of a given amount of a hazardous substance, may be determined as much by characteristics of the body of water into which the substance is discharged — flow rate, size of the water body, salinity, hardness, alkalinity, biological population, and buffering capacity — as well as the toxicity of the substance itself.

Judge Vernon also said that EPA went against the clear intent of Congress by relying solely on physical removability and ignoring means of mitigating harm (i.e. through neutralization of harmful substances) when determining which spillers were to be subject both to clean-up costs and to special penalties that were to serve as deterrents to the discharge of non-removable substances.

Congress assists EPA

EPA turned to Congress for assistance in correcting the deficiencies pointed out by the court and on Nov. 2, 1978, the 95th Congress enacted Public Law

95—576 [14], which amended the Federal Water Pollution Control Act.

The new measure, worked out with the co-operation of EPA and industry representatives [15], simplified reporting requirements by changing the concept from “harmful” to “reportable” spills and clarified the Agency’s authority to define hazardous pollutants and designate harmful quantities. The Agency will now be able to prosecute spillers of hazardous substances, without making an assessment of actual harm to public health and welfare.

A significant change occurred in the penalty provisions. The maximum civil penalty for violation was reduced by a factor of 100 from \$5,000,000 to \$50,000 for vessels and has to be imposed by the court (as contrasted to being levied by the EPA Administrator in the previous rule). The penalty for willful negligence, however, could be as high as \$250,000. Under the amendment, EPA must consider the gravity of the offense and standard of care shown by a discharger of hazardous material. Another provision makes clear the difference between discharges that are regulated by NPDES permits* and discharges that are classified as spills.

From harmful to reportable

As a result of this new law (PL 95—576), EPA proposed new rules on Feb. 16, 1979 in the Federal Register. These rules were finalized on August 29, 1979 [1] with an effective date of September 28, 1979.

The major change was that EPA would no longer be required to make a determination of harm due to a chemical discharge. The Agency now simply requires reporting of spills of hazardous chemicals that reach watercourses in excess of the amounts specified in the regulations. The rating system of 1, 10, 100, 1000 or 5000 lb. depending on toxicity (Table 3) is now used for determining reportable quantities. However, mixtures of two chemicals are not considered to be additive, as in the previous regulations, i.e. 0.5 lb. of one chemical and 0.5 lb. of another, both highly toxic, even though equating to 1 lb. of a compound in the X category, does not now constitute a reportable quantity. Each component must exceed its designated reportable quantity for a spill to be required to be reported.

With regard to municipal sewage plants, or publicly operated treatment works (POTW), EPA does not hold these facilities responsible for discharges of hazardous substance if the chemicals are received in their influent. These plants are, however, urged to report such occurrences. POTW’s are, on the other hand, responsible for hazardous chemicals they use themselves in the operation of their treatment system.

Realizing hazardous substances reach POTW’s through illegal discharges or ‘midnight dumping’, EPA proposes to hold responsible the owner/operator of a mobile source that accidentally or intentionally discharges to a POTW’s sewer system.

*NPDES (National Pollutant Discharge Elimination System) Permits are the permits issued for discharges of chemical substances from point source facilities into the navigable waters of the nation.

EPA, also, carefully clarified the relation between the regulations under section 311 and those controlling continuous allowed discharges under an NPDES permit (section 402). A facility having a NPDES permit that allows a discharge in excess of a reportable quantity of a hazardous substance is now exempted from the Section 311 rules.

The penalty for discharging a reportable quantity of a designated hazardous material, as noted previously, was reduced by Congress. Under Section 311 (b) (6) (B), the Administrator must commence a civil action in the courts to impose a penalty, now limited to \$50,000 unless such discharge is the result of willful negligence or willful misconduct with the knowledge of the owner, operator, or person in charge, in which case the penalty limit is \$250,000.

In determining whether or not a civil action will be commenced, under the foregoing section, the Administrator of EPA will consider the gravity of the offense based on the size of the discharge, the degree of harm to the public health, safety of the environment, including consideration of toxicity degradability, and dispersal characteristics, previous spill history of the spiller, and previous violation of any spill prevention regulations. Particular emphasis will be placed on the standard of care and extent of mitigation efforts manifested by the spiller.

In the new regulations, the penalty for not reporting a spill remained at \$10,000 and one year in prison, while liabilities for clean-up were as written in Section 311 (f) of the act. These are \$150 per gross ton for vessels and \$50,000,000 maximum for on-shore and off-shore facilities.

Under an amendment to Section 311, EPA is required to conduct a study and report to Congress by May, 1980 on methods, mechanisms and procedures to create incentives to achieve a higher standard of care in all aspects of the management and movement of hazardous materials. This study shall include: (1) limits of liability, (2) liability for third party damages, (3) penalties and fees, (4) spill prevention plans and (5) current practices in the insurance and banking industries.

Prevention and response

In conforming with Section 311 (j) (1) (c), EPA must publish spill prevention regulations that require compliance with minimum guidelines. Proposed guidelines which appeared in the Federal Register on September 1, 1978 [16] are almost an exact duplication of the successful regulations used to control oil spills [6].

In essence, these proposed rules require each industry producing, handling, or storing hazardous materials, to inspect their facility and operational practices with a view towards preparing a spill prevention plan. The facility owner/operator would, when a spill potential existed, upgrade his facility to prevent a spill from occurring or reaching a watercourse. Examples of modifications to accomplish this might include the installation of: (a) high level alarms to prevent tank overflows, (b) diked storage tank areas having sufficient volume to contain a rupture of the largest tank, (c) safe unloading procedures, etc.

Once the inspection is complete, the owner/operator would reduce the spill prevention plan to writing, and establish a timetable for implementation of any required facility modifications. In addition to the prescribed physical changes, a contingency plan which describes in detail those procedures to be taken during an actual spill episode would be incorporated into the Prevention Plan. The Plan, although required by EPA, would not need to be submitted to the Agency; it would become operative after it had been reviewed and certified by a licensed professional engineer who indicated that the Plan satisfied the requirements of the regulation. However, if a spill occurred, and if hazardous chemicals reached a water body, the Plan, including any amendments, would have to be submitted to EPA for review.

Conclusion

The law requiring regulations pertaining to hazardous material spills was passed by Congress in 1972. The regulations have been long in coming, and the process was not without many trials and tribulations. The interim regulations appeared in the Federal Register in August 1974 as a notice of proposed rule making.

These proposed rules attracted much industry comment which EPA had to consider and respond to. Sixteen months later, the rules, with modifications, were proposed. Again there was a long delay, this time over two years, before EPA's final (they thought) version of the rules on control of hazardous material spills appeared. However, a successful court case by the Manufacturing Chemist's Association appeared to send EPA "back to the drawing board".

TABLE 5

Progress of laws passed by the U.S. Congress affecting spills of hazardous chemicals

Congressional Action

Year	Act	Title	Impact
1970	91-224	Water Quality Improvement Act	Federal response to pollution by oil and hazardous materials
1972	92-500	Amendment to Federal Water Pollution Control Act	Goal of no discharge of oil or hazardous materials
1977	95-217	Clean Water Act	Amendment of liability for mitigation, assessment of cost to dischargers
1978	95-576	Amendments to Federal Water Pollution Control Act	Changes in 92-500 to overcome objections of court

Legislative assistance by the Congress resolved industry's objection and finally, seven years after Congress passed the omnibus 1972 Water Quality Improvement Act, the EPA had an operable hazardous material spills law.

As experience is gained by both EPA and industry, as records are compiled on spills, as fines are assessed and as prevention measures are implemented, then the country will be able to determine the impact and success of the approach mandated by Congress.

TABLE 6

Progress of U.S. Federal Law regulating hazardous materials spills as published in the Federal Register by U.S. EPA

Date	Rules	Chemical	Action
Dec. 11, 1973	Oil spill prevention	Oil	Spill prevention
Aug. 22, 1974	Designation and determination of removability	Haz. mats. (370)*	Proposed rules
Dec. 30, 1975	Designation, removability harmful quantities, penalty rate	Haz. mats. (306)*	Proposed rules
Mar. 13, 1978	Hazardous substances	Haz. mats. (299)*	Proposed rules
Sept. 1, 1978	SPCC Plan; best management plan	Haz. mats.	Proposed rules
Aug. 29, 1979	Reportable quantities	Haz. mats (299)*	Final rules
March 19, 1980	National contingency plan update	Oil & Haz. mats.	Most recent revision

*Number of hazardous chemicals on the list.

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- 5 National oil and hazardous substances pollution contingency plan, Final revision, Federal Register, 45, No. 55, Mar. 19, 1980, 17833-17860.
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- 13 Manufacturing Chemists Association et al., V. Douglas, M. Costle et al., No. 780578, U.S. District Court, Western District Louisiana, Lake Charles Division, August 4, 1978.
- 14 U.S. Congress, Public Law 95-576, Amendments to Clean Water Act Changing Enforcement for Chemical Spills, 1978.
- 15 Anon., Chem.Eng., 56 (Nov. 6, 1978) 68.
- 16 National pollutant discharge elimination system proposed requirements for spill prevention control and countermeasure plans to prevent discharges of hazardous substances from central facilities, Federal Register, 43, Sept. 1, 1978, 39276—39280.