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Laws Governing Use and Impact of Agricultural Chemicals: Agricultural Chemicals and Water Pollution¹

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THE CLEAN WATER ACT

Through the Federal Water Control Amendments of 1972,¹ commonly known as the Clean Water Act, Congress established a national strategy to reduce water pollution. The objective of the Act is to restore and maintain the chemical, physical, and biological integrity of the nation's water and to eventually eliminate the discharge of pollutants altogether.²

The Clean Water Act functions primarily by requiring that persons engaged in polluting activities obtain a permit from the EPA containing detailed limitations on the type and amount of polluting substances that may be discharged, and the manner in which pollutants are to be discharged.³ If the permit conditions are violated, the permit holder is subject to civil, or in extreme cases, criminal penalties.⁴ The Act authorizes the states to implement and enforce its provisions, and most states have done so.⁵ In these states, permits are obtained from the state's environmental regulatory agency.⁶

The Clean Water Act establishes three categories of pollution sources: point sources, non-point sources, and dredge and fill operations.

Point Sources of Water Pollution

The act defines a point source as any discernable, confined, and discrete conveyance from which a pollutant may be discharged.⁷ For example, a pipe or a ditch carrying pollutants which discharges into a river is a point source of water pollution.⁸

A point source may also be a container which is emptied into water.⁹ An operator of any point source which discharges pollutants into the nation's waters must obtain a permit or otherwise be subject to penalties.¹⁰

The terms of the Act are broadly defined to bring a large number of activities within its requirements. "Pollutant" is defined by the EPA as "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or

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discarded equipment, sand, cellar dirt, and industrial, municipal, and agricultural wastes discharged into water.¹¹ The term "waters of the United States" as referred to in the Act extends not only to open bodies of water such as harbors, lakes, and streams, but also to wetlands and even dry spillways that flow only during heavy rainfalls.¹²

The Act specifically exempts agricultural irrigation return flow and agricultural stormwater runoff from the definition of point source, and thus from the National Pollution Discharge Elimination System (NPDES) permit requirements.¹³ However if pollutants are purposely poured into a storm drain a court may find that point source pollution exists. For instance, In United States v. Gratz¹⁴, a pharmaceutical company disposed of chemicals by pouring them down a storm drain. The company claimed that it was exempt from the permitting requirements under the Clean Water Act because the storm drain was not a point source. However, the court ruled that pollutants intentionally dumped into a storm drain that lead to a navigable water constituted a point source discharge.

Although not necessarily "point sources," several types of agricultural operations have been made subject to the NPDES permit requirements. These are operations that by their nature are likely to pollute water. They include fish farms, most agricultural processing facilities, including feedlots and packing houses, sawmills, sugar mills, grain mills, fruit and vegetable processing or canning facilities, and fertilizer manufacturing plants.¹⁵

The NPDES permit system is based on water quality standards developed by the EPA or by the states.¹⁶ Under this system, all water bodies in the United States are classified according to the uses or planned uses.¹⁷ A water quality standard containing limits on pollutants is then developed to protect those uses.¹⁸ All permits issued must then contain limitations on discharges sufficient to protect the water quality standard for the particular water body.¹⁹

To simplify the process for permit applicants, the EPA has developed standards for permits based on the industry for which it is issued, available pollution control technology, and water quality standards to be met.²⁰ Stricter standards are placed on industries which discharge toxic pollutants.²¹ The required pollution control devices and other conditions governing pollution discharge are contained in the

permit and must be followed closely. When a permit expires, stricter conditions may be imposed.

Enforcement: Owners or operators of point sources are required to maintain operational records, make reports, install, use, and maintain certain monitoring equipment or methods, and take samples.²² Officials responsible for enforcing the act have the right to enter and inspect any point source operation and may bring civil suit against a violator or issue an order to seek compliance.²³

Civil fines can range up to \$25,000 per day for a willful or negligent violation.²⁴ Criminal fines for negligent or knowing violations range from \$2,500 to \$100,000, two to six years imprisonment, or both.²⁵ The maximum punishment for knowing endangerment is a fine of \$500,000, thirty years imprisonment, or both.²⁶ The Administrator (of the EPA) has the right to commence a civil action, including a permanent or temporary injunction against any operations which illegally discharge pollutants.²⁷

The Clean Water Act also contains a citizen's suit provision, authorizing any person "having an interest which is or may be adversely affected" by a violation of the act to sue either the violator directly or the EPA to compel enforcement.²⁸

Non-Point Sources

Non-point sources of pollution are all sources of pollution other than point sources or pollution from dredge and fill activities.²⁹ The 1987 amendments to the Clean Water Act require states to develop "non-point source management programs."³⁰

These amendments are of great importance to farmers because they impose restriction on pollutants in agricultural runoff or other non-point source discharges of agricultural chemicals. Although many states already had non-point source water pollution regulations, the new federal law requires that many of these regulations be strengthened.

The state non-point source management programs must include assessment reports which:

- identify waters in the state which require control of non-point sources of pollution in order to attain or maintain applicable water quality standards or the goals and requirements of the Clean Water Act;

- identify categories and subcategories of non-point sources of pollution which add significant pollution to state waters (including individual polluters);
- describe the processes the state intends to follow to identify Best Management Practices (BMPs) and other measures to control and reduce non-point source pollution;
- identify and describe state and local programs for controlling pollution from non-point sources.³¹

In addition to an assessment report, each state must submit to the Administrator of the EPA a management program for control of non-point source pollution. Each program is required to:

- identify measures to be taken by the state to reduce non-point source pollution;
- identify the programs the state intends to utilize to implement non-point pollution control measures;
- contain a schedule governing implementation of state programs;
- identify all sources of funding, including federal funding, available to the state.³²

This section of the Clean Water Act also provides for a federal grant program for implementing non-point water source pollution control programs.³³

Because runoff and leaching of fertilizers and pesticides is a major source of non-point source water pollution, the state management programs closely regulate farmers and pesticide applicators. Familiarity with the state programs is therefore mandatory to avoid state penalties. For details about state programs, farmers and agricultural chemical applicators should contact their state departments of agriculture and environmental regulation.

Dredge and Fill Permits

The Army Corps of Engineers is responsible for enforcing the dredge and fill provisions of the Clean Water Act.³⁴ Activities that result in the discharge of dredge or fill material into the waters of the United States is prohibited unless a permit is obtained from the Corps.³⁵ The construction or maintenance of farm or stock ponds, irrigation and drainage ditches, as well as "normal" agricultural activities are exempted from the dredge and fill permit requirements.³⁶ Normal agricultural activities for the purposes of the Act include plowing, planting,

harvesting, minor drainage, and upland soil and water conservation practices.³⁷

THE RURAL CLEAN WATER PROGRAM

The Rural Clean Water Program (RCWP) is a federal program designed to assist farmers in implementing erosion control practices. The goal of the program is to improve water quality in rural areas by reducing non-point source pollution from agricultural operations. Program participation is voluntary.³⁸

Rural areas with water pollution problems are identified by the states. Eligibility for federal funds is limited to those areas determined to have the most critical water pollution problems based on type, amount, and extent of pollution. Eligibility is also based on the impact of the pollution on human health and on the environment, the uses to which the polluted waters are put, and the feasibility of correcting the pollution through the use of Best Management Practices (BMPs).³⁹ BMPs are erosion and runoff control measures recommended for the various areas of the country by the EPA and the United States Soil Conservation Service. An area is more likely to be selected if state and local officials are committed to assisting the project through cost-sharing or technical assistance.⁴⁰

Once an area is deemed eligible, landowners contributing to the pollution are offered long term contracts for financial and technical assistance in installing appropriate BMPs on their property. Private landowners are eligible for up to \$50,000 in assistance,⁴¹ while public corporations (corporations with publicly traded stock) are eligible if they can demonstrate that installing BMPs without federal assistance would constitute an "inappropriate burden" on the corporation.⁴² However, federal assistance is limited to fifty percent of the total cost of installing the BMPs unless a variance is granted.⁴³ Variances are more likely to be granted where the lack of erosion or runoff control results in serious pollution at a location removed from the site.⁴⁴

THE COASTAL ZONE MANAGEMENT ACT

The Coastal Zone Management Act⁴⁵ (CZMA) may also affect the farmer's use of pesticides. Under the Act, the federal government encourages the states to develop water use programs for the coastal zone.⁴⁶ This encouragement takes the form of grants to coastal states which comply with the

CZMA's coastal resource improvement program.⁴⁷ The Department of Commerce governs the CZMA. The Secretary of Commerce has the authority to make grants to any coastal state, including grants for up to 80% of the administrative cost of the programs.⁴⁸

The CZMA defines coastal states are those states of the United States in, or bordering on, the Atlantic, Pacific, or Arctic Oceans, the Gulf of Mexico, Long Island Sound, or one or more of the Great Lakes.⁴⁹ Coastal waters are the Great Lakes area, and in other areas, those waters adjacent to shorelines which contain a measurable quantity of sea water.⁵⁰

In 1990, the CZMA was modified by the Coastal Zone Act Reauthorization Amendments.⁵¹ The Reauthorization Amendments mandate each coastal zone state to implement a Coastal Zone Non-point Pollution Control Program as a part of each state's coastal zone management program.⁵² Consequently, farmers who use pesticides and live in coastal states should find out whether their land is part the coastal zone, or if their pesticide application violates their states' applicable coastal zone management programs. Under the Coastal Zone Nonpoint Pollution Control Program, pesticide application is subject to regulation under CZMA if pesticide runoff from non-point sources reaches coastal waters.⁵³

THE SAFE DRINKING WATER ACT

The Safe Drinking Water Act⁵⁴ may also affect a farmer's use of pesticides. Under the Act, the EPA establishes national drinking water standards, called maximum contaminant levels (MCLs).⁵⁵ Public water systems may not deliver water exceeding the MCLs. The Act also authorizes the EPA to set maximum contaminant level goals (MCLGs).⁵⁶ MCLG is an unenforceable goal set at a level which no known or anticipated adverse effects on the health of persons occur. MCLs are set as close to the MCLG as possible.⁵⁷ While the law is intended to control the operation of the public water systems and not the activities of potential polluters, it can and has been so applied.⁵⁸ For instance, in International Fabricare v. EPA,⁵⁹ the court upheld the EPA's decision to establish MCLs and MCLGs for several contaminants used by chemical and dry cleaning companies. The EPA's decision essentially had the effect of lowering the amount of pollutants that the companies could discharge.

In particular, states must control and monitor activities posing a threat to public drinking water sources.⁶⁰ Any activity that introduces pollutants into a source of drinking water, not necessarily just into a well, is within the scope of the Safe Drinking Water Act.⁶¹ This means that applying pesticides may fall within the purview of state control if drinking water sources are threatened.

An irrigation back-flow may constitute underground injection and thus fall within the Act if it results in the subsurface introduction of pesticides or other pollutants.⁶² If water pollutants back-flow into the water source and subsequently pose a threat to a public drinking water sources, the irrigation operation may be shut down. This would be true even if the Safe Drinking Water Act did not apply to back-flow. Authority to halt any operation posing a danger to public health and safety lies with each state and the EPA.

Enforcement

Civil fines can be as high as \$25,000 per day for a non-willful or willful violation.⁶³ Administrative penalties can be as high as \$125,000.⁶⁴ Willful violators can be subject to as much as three years imprisonment.⁶⁵ When a court decides the amount of a fine that should be imposed for violating the Act it may consider the seriousness of the infraction, the population exposed to risk, and other relevant factors. In U.S. v. City of North Adams⁶⁶ the court imposed a civil penalty on the city of North Adams when it exceeded the established MCLs for coliform bacteria. The court first evaluated the seriousness of the infraction. It decided that the presence of coliform bacteria in the city's drinking water was an indication of the potential existence of salmonella and certain types of viruses. Therefore the MCL violations for coliform bacteria enhanced the risk of disease and were considered very grave. The court also found that the city's violation placed a population in excess of 16,000 persons at risk. The court took other factors into account such as the city's efforts to comply with the Safe Drinking Water Act and its ability to pay a penalty. The city had attempted to improve its chlorination systems. Furthermore, the city was unable to pay an excessive fine. Therefore, the court imposed a civil penalty of \$67,200.00 (or \$15.00 a day) on the city for exceeding the MCLs for coliform bacteria.

Citizen suits are another remedy. Any person may commence a civil action against another who

violates any requirement imposed by the Act or by enforcement officials.⁶⁷ However, before violators may be sued, they must be given sixty days in which to correct the violation. If the violation is corrected within this period, no court action by private citizens is allowed.⁶⁸ The state, however, can still impose civil fines for each day the violation remains or remained uncorrected.⁶⁹

CHEMIGATION

Chemigation refers to the application of fertilizers or pesticides through irrigation systems. If such systems are not carefully designed and safely managed, the process can result in serious groundwater contamination and legal consequences of significant magnitude.

Safety equipment is available that, when properly installed, can prevent back-flow and subsequent groundwater contamination. Farmers should consult state laws and local ordinances which may mandate the installation of equipment for back-flow prevention. Farmers seeking information on the installation and maintenance of back-flow preventers should contact their irrigation equipment dealer or state extension agents.

Although the farmer cannot be completely shielded against exposure to legal liability, the installation of safety equipment will reduce exposure. Additional liability reducing safeguards may include the requirement that employees obtain and maintain certified applicator status; prechemigation water analysis at the water source and locations near the water source; consideration of run-off direction; knowledge of potential plant toxicity in the preparation of chemical application schedules and dosage rate; judicious adherence to recommended application rates; sound soil conservation techniques; periodic equipment calibration; consultation with legal counsel on the advisability of purchasing worker's compensation insurance coverage and purchase of chemical liability insurance.⁷⁰

The EPA has established chemigation labeling requirements for all pesticides released for shipment by a registrant after April 30, 1988. If the registrant intends that a pesticide be used through irrigation systems, the registrant must provide specific instructions for such use on the pesticide label. If the registrant does not intend for the pesticide to be used through irrigation systems, the pesticide label must prohibit such use.⁷¹

WETLAND REGULATION

Federal Regulation

At the federal level the development and preservation of wetlands is regulated by both the United States Army Corps of Engineers⁷² and the EPA⁷³. The Corps has broad authority to regulate activities affecting the course, location, or capacity of navigable waters⁷⁴, nonnavigable rivers and streams and adjacent wetlands. Because actual connection to navigable waters is not required, the Corps' jurisdiction extends to virtually any body of water, plus adjacent wetlands, in the United States.⁷⁵

Activities involving the discharge of dredged or fill material require a permit from the Corps. The criteria for permitting involves the application of a public interest test adopted by the Corps⁷⁶ and a set of guidelines adopted by the EPA⁷⁷ in consultation with the Corps. The public interest test involves balancing the various factors affecting the public interest, such as the preservation of wetlands and associated wildlife.

The guidelines adopted by the EPA are used to evaluate discharges of dredge or fill materials. The EPA can enforce these guidelines by "vetoing" Corps issued permits. This is very rare.⁷⁸ The EPA's guidelines prohibit the discharge of dredged or fill material unless the effects on the water quality, wildlife and other resource values associated with wetlands are not adverse. If there is a practical alternative that would be less damaging, the discharge is prohibited. If the activity is not water dependent, practical alternatives are presumed to be available.

Swamp Buster Provision

Another method of regulating the development and preservation of wetlands at the federal level is through the Swamp Buster Provision.⁷⁹ The Swamp Buster Provision was enacted by the Food Security Act of 1985.⁸⁰ This Provision is implemented by the USDA through the Natural Resources Conservation Service and the Agricultural Stabilization and Conservation Service. The Provision deters the destruction of wetlands by not granting agricultural subsidies to producers who grow agricultural commodities on converted wetlands.⁸¹ The Provision also will not grant agricultural subsidies to producers who convert wetlands by draining, dredging, or filling, for the purpose of agricultural production.⁸² For example, in *Downer v. United States*,⁸³ the court

upheld USDA's decision to withhold subsidization from a farmer who filled in wetlands in order to grow rye.

Under the Swamp Buster Provision a person who produces an agricultural commodity on a converted wetland in a given crop year will not be eligible for subsidization for any commodity produced by that person during that crop year.⁸⁴ Therefore if a producer grows corn on a converted wetland in a given crop year, but grows wheat on land other than a converted wetland, that producer will get no subsidies for either the corn or the wheat in that crop year. The Provision further makes any person who converts a wetland by draining, dredging, or filling, for the purpose of producing an agricultural commodity, ineligible for subsidies for both the crop year that the conversion takes place and for all subsequent crop years. Therefore, if in a given crop year a producer converts a wetland by draining, dredging or filling in order to produce corn the producer will not receive subsidization for that crop year or any future crop years. Ineligibility in this instance can only be overcome if the farmer fully restores the converted wetland to its previous state.⁸⁵

Producers who do not comply with the Swamp Buster Provision may still be able to receive agricultural subsidies if the producers fall under an exempt category. Although there are several exemptions, three will be mentioned here. Producers will not be ineligible for agricultural subsidies if:

1. Commenced Determinations: wetland conversion was commenced before December 23, 1985; or
2. Good Faith Reliance: Producer entered into an agreement with the Secretary of Agriculture to fully restore the converted wetland to its prior condition. Provided that the producer has committed no other violation of the Swamp Buster Provision within the previous ten year period and the producer grew the commodity on the converted wetland without the intent to violate the Provision; or
3. Minimal Effects: draining, dredging, or filling will have a minimal effect on the functional values of the wetland and the effects of such action are mitigated by the producer through restoring the wetland.⁸⁶

The Swamp Buster Provision has proven beneficial to the development and preservation of

wetlands. The Provision only applies to producers who rely on subsidization.

Wetland Reserve Program

A third source of wetland development and preservation at the federal level is the Wetland Reserve Program.⁸⁷ This program assists wetland owners in the protection and restoration of wetlands.⁸⁸ The Secretary of Agriculture in conjunction with the Secretary of the Interior determines which wetlands are eligible for enrollment.⁸⁹ This determination is based on whether the wetland is farmed or converted and the likelihood of successful restoration.⁹⁰ After it is determined that a wetland is eligible, the wetland owner must grant an easement on the land to the Secretary of Agriculture and agree to implement a Wetland Easement Conservation Plan.⁹¹

The Plan must permit:

1. repairs, improvements, and inspections that are necessary to maintain existing public drainage systems when the wetland is restored to its normal condition; and
2. landowner control over public access on easement areas while identifying access routes to be used for wetland restoration activities; and
3. provisions for efficient and effective restoration of wetland functional values.

The Plan must prohibit:

1. the alteration of wildlife habitat, unless specifically permitted by the plan; and
2. spraying the land with chemicals or mowing the land except where spraying or mowing is necessary to comply with federal or state noxious weed control laws or emergency pest treatment programs.⁹²

When the wetland owner grants the easement, the Secretary, in return, will share the cost of implementing the Wetland Easement Conservation Plan and provide technical assistance to the wetland owner in complying with the conditions of the Plan.⁹³

State Regulation

Many states have enacted legislation to control the use and development of wetlands. In Florida, for example, there is a vast amount of legislation

governing wetlands. Florida's legislation applies to construction, dredge, or fill activities conducted in waters of the state. In all instances, water quality standards must be maintained.⁹⁴ Generally, a permit will be issued if it is "not contrary to the public interest." The public interest determination consists of a balancing of factors including the project's effects on the general health, safety, and welfare, the property of others, fish and wildlife, navigation, the flow of water, erosion, shoaling, fishing, recreation, marine productivity, and significant historical and archaeological resources. Cumulative impacts must also be considered.⁹⁵ If the applicant is unable to otherwise meet the public interest test, proposals to mitigate the adverse effects of the project must be considered.⁹⁶ Stricter permitting criteria may be adopted for certain sensitive areas such as Outstanding Florida Waters of Critical State Concern.

Minnesota wetland legislation is another example of the states' efforts to protect wetlands. In Minnesota a permit to drain a wetland will not be issued unless the wetland is replaced.⁹⁷ Before obtaining a permit to drain a wetland the applicant must comply with a restoration plan. The restoration plan calls for replacing drained wetlands with wetlands that will have equal or greater public value. Furthermore, the restoration plan must be completed prior to or concurrent with the actual draining of a wetland.⁹⁸

Wisconsin has also enacted wetland legislation. Wisconsin statutes give each city broad discretion in enacting zoning ordinances to further wetland protection and conservation.⁹⁹ These ordinances enumerate procedures that must be followed before activities on wetlands can commence. Each city within the state must enact a wetland zoning ordinance once it is determined that wetlands are located within its boundaries.¹⁰⁰ Many of the ordinances protect wetlands by requiring a permit to be issued before wetlands can be modified.

DEFINITIONS, ABBREVIATIONS AND ACRONYMS

Citation Definitions

Et seq.: and the following

Id.: the same; used to indicate a reference previously made.

Infra: within; used to indicate a reference made in a later part of the paper.

Supra: above; used to indicate a reference made in a previous part of the paper.

Definitions

Actual Damages -- The amount awarded to a plaintiff in compensation of the plaintiff's actual and real loss or injury.

Common Law -- It is a body of law that develops and derives through judicial decisions, as distinguished from legislative enactments.

Enjoin -- To require a person, by writ of injunction, to perform, or to abstain or desist from, some act.

Injunctions -- A court order prohibiting someone from doing some specified act or commanding someone to undo some wrong or injury.

Inherently dangerous -- Danger inhering in an instrumentality or condition itself at all times, so as to require special precautions to prevent injury; not danger arising from mere casual or collateral negligence of others with respect to under particular circumstances.

Nominal Damages -- The trifling sum awarded to a plaintiff in an action, where there is no substantial loss or injury to be compensated, but still the law recognizes a technical invasion of his rights or a breach of the defendant's duty.

Punitive Damages -- Damages that are above and beyond that which would compensate the plaintiff for his loss. They are based on the public policy of punishing a defendant who acted willfully, maliciously, or fraudulently.

Statutory Law -- The body of law created by acts of the legislature in contrast to constitutional and common law.

Definitions are taken from *Black's Law Dictionary* 1990 edition.

Abbreviations

C.F.R.: Code of Federal Regulations

U.S.C.: United States Code

Acronym List

BMP - Best Management Practices
 CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
 CZMA - Coastal Zone Management Act
 DOT - Department of Transportation
 EPA - Environmental Protection Agency
 ESA - Endangered Species Act
 FAA - Federal Aviation Administration
 FACT - Food, Agriculture, Conservation, and Trade Act
 FDA - Food and Drug Administration
 FFDCA - Federal Food, Drug, and Cosmetic Act
 FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act
 IPM - Integrated Pest Management
 MCL - Maximum Contaminant Level
 MCLG - Maximum Contaminant Level Goals
 NPDES - National Pollution Discharge Elimination System
 OSHA - Occupational Safety and Health Act
 PPE - Personal Protective Equipment

RCRA - Resource Conservation and Recovery Act
 RCWP - Rural Clean Water Program
 REI - Restricted-Entry Interval
 SARA - Superfund Amendments and Reauthorization Act
 TPQ - Threshold Planning Quantity
 USDA - United States Department of Agriculture
 WPS - Worker Protection Standard

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1. 33 U.S.C. §1251 et seq. (1994).
2. Id. at §1251(a) (1994).
3. 33 U.S.C. §§1341-1345 (1994).
4. 33 U.S.C. §§1319 (1994).
5. See Neil E. Harl, Agricultural Law, §14 (1982).
6. State water pollution management instituted pursuant to the Clean Water Act may be more stringent than the Act itself. This chapter addresses federal law. The possibility of the existence of additional local and state laws regulating water pollution should always be kept in mind. To keep abreast of the laws in their areas, reasons should contact their state department of agriculture, appropriate state environmental regulatory agency, or an attorney, before undertaking any activity likely to pollute water.
7. 33 U.S.C. §§1362(14) (1994).
8. Id.
9. Id.
10. 33 U.S.C. §§1342(a)(1) (1994).
11. 33 U.S.C. §§1362(6) (1994).
12. 33 U.S.C. §§1362(7) (1994); 40 C.F.R. §122.2 (1993).
13. 33 U.S.C. §§1362(14) (1994).
14. 1993 WL 19733 (E.D.Pa.) (1993)
15. For the EPA regulations governing these and other facilities see 40 C.F.R. parts 400-471 (1993).
16. 33 U.S.C. §§1341-1345 (1994).

17. 40 C.F.R. §131.10 (1993).
18. 40 C.F.R. §131.11 (1993).
19. Id.
20. 40 C.F.R. §125.1 et seq. (1993).
21. Id. at §125.3(a)(1) (1993).
22. 33 U.S.C. §1318 (1994).
23. 33 U.S.C. §1319(a) (1994).
24. 33 U.S.C. §1319(d) (1994).
25. 33 U.S.C. §1319(c)(1)-(2) (1994).
26. 33 U.S.C. §1319(c)(3) (1994).
27. 33 U.S.C. §1319(b) (1994).
28. 33 U.S.C. §1365 (1994).
29. See 2 William H. Rogers, Jr., Environmental Law: Air and Water 124 (1986); 2 Jackson B. Battle, Environmental Law 213 (1986) (citing examples of non-point source pollution).
30. 33 U.S.C. §1329 (1994).
31. 33 U.S.C. §1329(a)(1) (1994). See also Rodgers, supra note 156, at 324-330. See generally, Edwin H. Clark, II, The Conservation Foundation, Estimated Effects of Non-Point Source Pollution (1984).
32. 33 U.S.C. §1329(b)(2) (1994).
33. 33 U.S.C. §1329(h)(1) (1994).
34. 33 U.S.C. §1344(d) (1994).
35. 33 U.S.C. §1344(f) (1994).
36. Id.
37. 33 U.S.C. §1344(f)(A) (1994).
38. 33 U.S.C. §1288j (1994); 7 C.F.R. §634.14 (1993).
39. 7 C.F.R. §634.14 (1993).
40. Id.
41. 7 C.F.R. §634.27(b) (1993).
42. 7 C.F.R. §634.20 (1993).
43. 7 C.F.R. §634.24 (1993).
44. Id.
45. 16 U.S.C. §1451 et seq. (1994).
46. Id. at §1451(i) (1994).

47. 16 U.S.C. §1454(a) (1994).
48. Id. at §§1454(a), 1455(a) (1994).
49. Id. at §1453(4) (1994). Under CZMA, the coastal zone is defined as "the coastal waters and the adjacent shore lands strongly influenced by each other and in proximity to the shorelines of the several coastal states." Id. at §1453(1) (1994).
50. Id. at §1453(2) (1994).
51. Pub. L. No. 101-508, 104 Stat. 1388-299 (1990) codified as 16 U.S.C. §1455b (1994).
52. Id. at §1455b(a) (1994).
53. Id.
54. 42 U.S.C. §300f et seq. (1994).
55. Id. at §300g-1
56. Id. at §300g
57. Id. at §300g-1
58. Natural Resources Defense Council v. United States Environmental Protection Agency, 824 F.2d 1258 (1st Cir. 1987).
59. 972 F.2d 384
60. 42 U.S.C. §300g-2 (1994).
61. 42 U.S.C. §300g (1994).
62. 42 U.S.C. §300h(d) (1994).
63. 42 U.S.C. §300h-2(b)(1) (1994).
64. 42 U.S.C. §300h-2(c)(1)-(2) (1994).
65. 42 U.S.C. §300h-2(b)(2) (1994).
66. 35 ERC 1679 (1992)
67. 42 U.S.C. §300j-8 (1994).
68. 42 U.S.C. §300j-8(b)(2) (1994).
69. 42 U.S.C. §300j-8(e) (1994).
70. C.L. Davis, National Symposium on Chemigation, Liability Considerations in Chemigation 117 (1981).
71. Environmental Protection Agency, Office of Pesticide Programs, Registration Division, Pesticide Registration Notice 87-1 (1987).
72. 33 C.F.R. §320.2 (1993).
73. 40 C.F.R. part 230 (1993).
74. 33 C.F.R. §320.2(b) (1993).
75. 4 Patrick J. Rohan, Zoning and Land Use Controls, §26A at 16-17 (1978).
76. 33 C.F.R. §320.4 (1993).

77. 40 C.F.R. part 230 (1993).
78. Rohan, supra note 189, §26A at 9.
79. 16 U.S.C. §3821 et seq. (1995)
80. 99 Stat. 1504 (1985)
81. 16 U.S.C. §3821(a) (1995)
82. Id. at §3821(b)
83. 1995 WL 455815 (D.S.D)
84. 16 U.S.C. §3821(a) (1995)
85. Id. at §3822
86. Id. at §3822(b)
87. Id. at §3837
88. Id. at §3837(a)
89. Id. at §3837(c)
90. Id.
91. Id. at §3837a
92. Id. at §3837a(b)
93. Id. at §3837c
94. **Fla. Stat. Ann.** §373.414(1) (1995)
95. Id. at §373.414(1)(a)
96. Id. at §373.414(b)
97. MN ST §103G.221 (1995)
98. Id.
99. WI ST §144.26 (1995)
100. WI ST §62.231(3)