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An Overview of Nutrient Management Requirements in Pennsylvania

Michael M. Meloy*

I. Introduction

For hundreds of years, animal wastes have been used as a source of nutrients for plant growth. Long before the development of commercial fertilizers, manure offered a ready source of nutrients to help stimulate greater crop production. Animal wastes can also enhance soil texture and conditions. Virtually anyone who has ever applied manure to a home garden can attest to the long-term benefits that such applications are likely to have with respect to soil quality, composition, and fertility.

Because plants can only assimilate certain amounts of nutrients, maintaining a nutrient balance is critical to crop production. Too few nutrients will adversely affect the ability of plants to flourish. On the other hand, too many nutrients can be detrimental to plant health and serve as a source of pollution to surface water and groundwater.

The adage “all things in moderation” is extremely relevant in the

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context of nutrient management. However, some agricultural operations have followed the alternative theory that “if a little is good, then more must be better.” This practice has resulted in the inefficient use of nutrients found in manure, costly over-application of commercial fertilizers, and adverse environmental impacts. In other instances, the need to dispose of large quantities of stockpiled manure has transformed the issue from one of appropriate nutrient utilization to one of waste management.

In recent years, agricultural practices have changed dramatically. Large livestock operations have supplanted many smaller, diversified operations. The increased concentration and specialization of livestock operations have resulted in localized generation of vast quantities of manure that must be managed in ways that do not result in pollution. The challenges posed by such operations have been a driving factor in fundamentally altering traditional regulatory approaches that have existed in the agricultural arena. This article provides an overview of key elements of the framework of statutes and regulations that are designed to address the management of nutrients from manure generated by agricultural operations in Pennsylvania. It discusses both federal requirements and requirements arising under Pennsylvania law, and it highlights the tension between the utilization of manure as a source of nutrients and the management of manure as a solid waste.¹

II. The Changing Face of Agriculture

Pennsylvania has a long and rich agricultural history. The Commonwealth is endowed with some of the best farmland in the world and a temperate climate. Farming has formed the backbone of many of the rural communities located across Pennsylvania and has been a traditional mainstay of Pennsylvania’s economy. Agriculture remains one of the top industries in Pennsylvania with sales of agricultural products totaling approximately four billion dollars per year.²

Historically, agriculture in Pennsylvania revolved around “traditional” family farms. In portions of Pennsylvania, some of these family farms have remained in continuous operation by the same

1. This article does not attempt to offer a comprehensive overview of environmental requirements that may be applicable to agricultural operations more generally. While agricultural operations traditionally have enjoyed exemptions and exclusions that have limited the impact of environmental regulations on such operations, agricultural operations are by no means wholly insulated from environmental regulation.

2. See Pennsylvania Facts, Pennsylvania State Data Center *available at http://pasdc.hbg.psu.edu/pasdc/Data_&_Information/PA_Fact_Brochure.pdf.

families from generation to generation spanning more than two centuries.

Many of Pennsylvania's traditional family farms have shared certain common characteristics. For example, traditional farms have tended to be relatively small in size and operated by family units. They have tended to produce a diversity of livestock and poultry rather than focusing on just one type of livestock or poultry. Traditional farms have typically relied on self-sustaining crop production. The feed necessary for the livestock on such farms has generally been "home grown." As a result, the size of livestock herds in proportion to the size of the farms has generally been small. Traditional farms have also tended to use their own manure to facilitate crop production. Finally, traditional farms have typically been characterized by a self-sustaining independence of operations producing commodities for sale in an open market.

Over the past several decades, substantial changes have taken place in the agricultural community. Development pressure and sprawl continue to erode the reservoir of productive farmland with which Pennsylvania has been blessed. Globalization of markets is occurring at a rapid pace. Many in the farming community face new and daunting economic challenges. On February 8, 2000, then Governor Tom Ridge, in his address concerning the 2000-2001 budget for the Commonwealth of Pennsylvania, highlighted the fact that since 1970, Pennsylvania has lost more than twenty-five percent of its farm acreage to other uses and that over 24,000 farms in Pennsylvania have disappeared.³

Paralleling trends evident throughout other parts of the country, traditional farming operations in Pennsylvania are increasingly being replaced with new types of farming operations that rely on economies of scale. Attributes of the new model of agribusiness include the following:

- Large, homogeneous production facilities focusing on one type of livestock or poultry as opposed to a diversity of livestock and poultry;
- Contractual integration with suppliers and marketers. For example, little, if any, of the feed necessary to support the livestock or poultry being raised may actually be grown on the farm itself. In addition, third parties may own or contractually control the livestock or poultry that is being

3. Governor Ridge's remarks are available at Governor Tom Ridge, 2000-2001 Budget Presentation, *The Pennsylvanians Behind the Numbers* (Feb. 8, 2000), at http://www.state.pa.us/PA_Exec/Governor/Speeches/000208-add.html.

raised;

- Highly concentrated numbers of livestock or poultry in proportion to the size of the farm;
- Large quantities of animal wastes to manage; and
- Increased centralization of decision-making authority and control.

As the concentration of animals being raised on a farm has increased, the task of effectively and safely managing the manure produced from such operations has become a greater challenge. Consequently, manure management in practical terms has become much more of a waste disposal issue than a crop enhancement issue.

In early 2001, the U.S. Environmental Protection Agency (“EPA”) cogently summarized this trend, as follows:

The number of U.S. livestock and poultry operations is declining due to ongoing consolidation in the animal production industry. Increasingly, larger, more industrialized, highly specialized operations account for a greater share of all animal production. This has the effect of concentrating more animals, and thus more manure and wastewater, in a single location, and raising the potential for significant environmental damages unless manure is properly stored and handled.⁴

According to statistics compiled by the United States Department of Agriculture (“USDA”) and cited by EPA, the number of livestock and poultry farms in the United States between 1974 and 1997 dropped by approximately forty percent.⁵ Over this same time period,

4. 66 Fed. Reg. 2960, 2974 (Jan. 12, 2001) (summarizing the need for and nature of proposed amendments to federal regulations governing discharges to surface waters from concentrated animal feeding operations (discussed *infra*)). The changes that are taking place in the agricultural arena identified by EPA parallel changes that many sectors of modern industry have experienced. The use of specialized labor forces, uniform production practices, assembly-line techniques, contractual integration, and capital concentration has dramatically altered the way that industry has produced commodities ranging from firearms, textiles, and furniture to cars and computers. The industrial model of agribusiness relies on many of the facets of mass production that have proven successful in other areas. Whether traditional models of agriculture can remain competitive remains to be seen and may reflect factors such as whether consumers are willing to make choices based, at least in part, on how commodities are produced rather than the price of the commodities themselves, whether negative externalities are ultimately internalized, and whether an industrial model of agriculture is sustainable over the long-term.

5. *Id.*

by approximately forty percent.⁵ Over this same time period, production of livestock and poultry dramatically increased. For example, the number of hogs and pigs that were sold on an annual basis increased almost eighty percent, while the number of turkeys and broilers that were sold on an annual basis more than doubled.⁶ The size of individual agricultural operations also increased dramatically during this time period. For example, the average number of hogs raised per operation on an annual basis increased more than five-fold.⁷ Poultry operations experienced four to five-fold increases as well.⁸

At the same time, environmental impacts associated with agricultural operations have been increasingly recognized as a significant concern. According to a report entitled "National Water Quality Inventory: 1998 Report to Congress," agriculture is the leading cause of water quality impairment suffered by lakes and rivers in the United States and is the fifth leading cause of water quality impairment in estuaries.⁹ In addition to impairment of surface water quality, improper management of manure has resulted in groundwater contamination in various parts of the country.

The same trends are evident in Pennsylvania. Agricultural operations have been identified by the Pennsylvania Department of Environmental Protection ("DEP") as one of the leading causes of water quality degradation in the Commonwealth. According to statistics compiled by DEP, agricultural runoff, including excess manure, soil erosion, pesticides and fertilizers, is the second largest source of water pollution in Pennsylvania trailing only acid mine drainage.¹⁰

Based on data compiled by EPA, manure contains basic nutrients (nitrogen, phosphorus and potassium), organic matter, solids, pathogens (disease-causing organisms including bacteria, viruses, protozoa, fungi, and algae), salts, trace elements such as arsenic, copper, selenium, zinc, cadmium, molybdenum, nickel, lead, iron, manganese, aluminum and boron (some of which are believed to be present as additives in animal feed to serve as growth stimulants or biocides), odorous and volatile compounds (such as methane, hydrogen sulfide and ammonia),

5. *Id.*

6. *Id.*

7. *Id.*

8. *Id.*

9. See 66 Fed. Reg. 2960, 2973 (Jan. 12, 2001) (citing *National Water Quality Inventory: 1998 Report to Congress*, available at <http://www.epa.gov/305b/98report>).

10. See Pennsylvania Department of Environmental Protection, *Water Pollution Control in Pennsylvania* (Nov. 1997), available at <http://www.dep.state.pa.us/dep/subject/pubs/water/wqm/fs0391.pdf>.

antibiotics, pesticides, and hormones.¹¹ When properly managed, manure can be a vital component of crop production and soil enhancement. When improperly managed, the constituents of manure can cause significant harm ranging from disease and other public health threats to air pollution and water pollution.

The changes taking place in the agricultural arena have sparked controversy and concern. Many rural communities are on unfamiliar ground as they find themselves at the center of a vortex of colliding interests and concerns. Economic, sociologic, environmental, health, aesthetic, and political issues are in play, often pulling in different directions. As agriculture evolves, its status in and relationship with the overall community will change. From an environmental perspective, the rights and responsibilities that agricultural has enjoyed likewise will change. These changes are already evident and are likely to accelerate to keep pace with the challenges that are before us.

III. Nutrient Management Regulations Under Federal Law

Since the flowering of modern environmental protection initiatives three decades ago, agriculture has largely avoided the command-and-control structure that underpins many of the federal environmental programs. Exclusions from environmental requirements frequently encompass agricultural activities because farms traditionally have been perceived as having diffuse and minimal potential environmental impacts. Nevertheless, federal regulatory authority exists to impose environmental requirements on agricultural operations, particularly operations involving large quantities of manure. The Clean Water Act serves as the focal point for such authority and is discussed below.¹²

11. See 66 Fed. Reg. 2960, 2976-79 (Jan. 12, 2001).

12. Along with requirements arising under the Clean Water Act, agricultural operations may face increasing regulation under the Resource Conservation and Recovery Act ("RCRA") as amended, 42 U.S.C. §§ 6901-6992k, and the Clean Air Act as amended, 42 U.S.C. §§ 7401-7671q. For example, the placing of manure in fields may constitute the disposal of a solid waste for purposes of RCRA if the manure is not returned to the soil for purposes of fertilization but instead is applied in such large quantities that its usefulness as an organic fertilizer is eliminated. See *Water Keeper Alliance, Inc. v. Smithfield Foods, Inc.*, 53 E.R.C. 1508, 1512 (W.D.N.C. 2001). Similarly, in 2001, EPA requested that the National Research Council evaluate emissions associated with animal feeding operations to help determine whether EPA should specifically regulate such emissions under the Clean Air Act. Emissions linked with animal feeding operations may contribute to the formation of fine particulate matter and ground-level ozone, both of which can pose risks to human health. In addition, certain of the constituents of manure identified by EPA qualify as hazardous substances as defined under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 as amended ("CERCLA"), 42 U.S.C. §§ 9601-9675 (2001). This creates the possibility that the costs of remediating contamination

A. *The Clean Water Act*

1. General Framework

a. Goals and Scope

The Water Pollution Prevention and Control Act (also known as the Clean Water Act) is one of the cornerstones for the federal environmental protection program.¹³ Congress passed the Clean Water Act in 1972 over President Nixon's veto. The fundamental objective of the Clean Water Act is nothing less than "to restore and maintain the chemical, physical and biological integrity of the Nation's waters."¹⁴

To achieve the lofty goals of the Clean Water Act, Congress designed a framework of tools and requirements that is deceptively simple in concept and highly complex in practice. Section 301(a) of the Clean Water Act prohibits the discharge of any pollutant by any person except as otherwise in compliance with certain provisions of the Clean Water Act.¹⁵ The "discharge of a pollutant" is defined to include "any addition of any pollutant to navigable waters from any point source."¹⁶ Navigable waters are defined in turn to mean the "waters of the United States, including territorial seas."¹⁷ A "point source" is defined, as follows:

[A]ny discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include

resulting from the discharge or placement of manure could fall within the ambit of CERCLA's broad liability provisions. *See* 42 U.S.C. § 9607(a) (2001).

13. *See* 33 U.S.C. §§ 1251-1387.

14. 33 U.S.C. § 1251(a) (2001).

15. 33 U.S.C. § 1311(a) (2001).

16. 33 U.S.C. § 1362(12) (2001).

17. 33 U.S.C. § 1362(7) (2001). Regulations promulgated by EPA broadly define "waters of the United States" to include (1) waters used in interstate or foreign commerce, (2) intrastate waters (including wetlands), (3) all other waters including intrastate waters, the use, degradation or destruction of which would or could affect interstate or foreign commerce, (4) impoundments of waters of the United States, (5) tributaries to the foregoing waters, and (6) wetlands adjacent to the foregoing waters. *See* 40 C.F.R. § 122.2 (2001). The scope of this definition has come under attack in recent years as members of the regulated community have argued that "waters of the United States" are delineated so broadly that they include waters that are beyond the limits of what the federal government may regulate under the Commerce Clause of the United States Constitution. *See, e.g.,* *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001).

agricultural stormwater discharges and return flows from irrigated agriculture.¹⁸

Finally, "pollutants" are defined to include "dredge spoil, solid waste, incinerator residue, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water."¹⁹

The foregoing provisions work in tandem to preclude in most instances the discharge of pollutants from point sources to surface waters such as rivers, lakes, ponds and streams, unless and until authorization for such discharges has been obtained, typically through receipt of a permit from the government. In essence, Congress sought to eliminate point source discharges to surface waters in the absence of prior approval from the government. This structural framework provides a ready mechanism to evaluate individual point source discharges and impose limitations on such discharges.²⁰

The task of administering the Clean Water Act is largely assigned to EPA. However, state regulatory agencies also play a critical role in this process. Under the terms of the Clean Water Act, responsibility for implementing a variety of requirements is vested with the states in the first instance.²¹ If the states do not fulfill their responsibilities, EPA is then to take on those obligations.²² In addition, the authority to issue and administer permits may be delegated to the states if the states have adopted regulatory programs that are at least as stringent as the federal program and EPA has approved the delegation of authority.²³

b. The NPDES Permit Program

One of the most important components of the Clean Water Act is

18. 33 U.S.C. § 1362(14) (2001).

19. 33 U.S.C. § 1362(6) (2001).

20. The Clean Water Act's focus on point source discharges highlights one of the key gaps in the legislation. Nonpoint sources of pollutants have and continue to be a significant source of pollutants that impact surface waters in the United States. However, nonpoint sources of pollutants are largely unregulated under the Clean Water Act. This structure shifts the burden of attempting to achieve the goals of the Clean Water Act to point source dischargers alone. Whether such a structure represents sound public policy is open for debate. From a practical perspective, the goals of the Clean Water Act may be unattainable under the current statutory structure because point source discharges are only part of the challenge.

21. *See, e.g.*, 33 U.S.C. § 1314(l) (2001) (relating to identification of impaired waters and development of individual control strategies for toxic pollutants).

22. *See, e.g., id.*

23. *See* 33 U.S.C. §§ 1342(b) and (c) (2001).

the National Pollutant Discharge Elimination System (“NPDES”) permit program established under Section 402 of the Clean Water Act.²⁴ The NPDES permit program serves to authorize and regulate point source discharges to surface water bodies. It provides the mechanism to translate the broad goals and objectives of the Clean Water Act into discharge-specific effluent limits and conditions.

Discharge limits are generally driven by two distinct sets of considerations. The Clean Water Act mandates that existing and new point source discharges meet uniform, technology-based discharge limits, regardless of the characteristics of the water bodies receiving the discharges. In addition, more stringent discharge limits may be imposed where necessary either to attain or maintain water quality standards established for the receiving water bodies.

(1) Technology-Based Effluent Limits

Effluent limitation guidelines and standards are federal regulations that establish limitations that apply on a national basis in connection with point source discharges by industry category and subcategory.²⁵ These limitations are based on the results that can be obtained through the use of various types of pollution control technology. Effluent limitation guidelines are implemented by being incorporated into NPDES permits.

Under Section 301(b)(1)(A) of the Clean Water Act, effluent limitations based on the application of best practicable control technology currently available (“BPT”) as determined by EPA were to have been met by July 1, 1977.²⁶ As mandated by Section 304(b)(1) of the Clean Water Act, EPA considers a number of factors in establishing effluent limitations based on BPT, including (1) the total cost of the application of technology in relation to the effluent reduction benefits to be achieved from such application, (2) the age of equipment and facilities involved, (3) the processes employed, (4) the engineering aspects of the application of various types of control techniques, (5) process changes, (6) non-water quality environmental impacts (including energy requirements), and such other factors as EPA may deem appropriate.²⁷ EPA typically establishes effluent limitations based on the average of the best performances of facilities within an industry group of various ages, sizes, processes, or other common

24. 33 U.S.C. § 1342 (2001).

25. *See generally* 33 U.S.C. § 1311 (2001).

26. 33 U.S.C. § 1311(b)(1)(A) (2001).

27. 33 U.S.C. § 1314(b)(1) (2001).

characteristics. Where existing performance is uniformly inadequate, EPA may require greater levels of control than are currently in place.

Under Section 301(b)(2)(A) of the Clean Water Act, effluent limitations based on the application of best available technology economically available ("BAT") were to have been achieved following the 1977 deadline for meeting BPT-based effluent limitations. Congress subsequently amended the Clean Water Act on several occasions to modify these requirements. The Clean Water Act currently provides that effluent limitations for toxic pollutants and other non-conventional pollutants based on BAT were to have been achieved by March 31, 1989.²⁸

In general, effluent limitations based on BAT are to represent the best existing economically achievable performance of dischargers in an industrial category or subcategory.²⁹ Factors to be considered in establishing effluent limitations based on BAT include (1) the age of equipment and facilities involved, (2) the processes employed, (3) the engineering aspects of the application of various types of control techniques, (4) process changes, (5) the cost of achieving effluent reductions, (6) non-water quality environmental impacts (including energy requirements), and such other factors as EPA may deem appropriate.³⁰ In addition, EPA typically considers whether effluent limitations based on BAT are economically achievable, taking into account the overall impact of such limitations on a particular industry's financial health. As with BPT-based effluent limitations, EPA may require the use of different pollution control technology where existing performance in an industrial category is uniformly inadequate.

Section 304(a)(4) of the Clean Water Act identifies as conventional pollutants biological oxygen demand ("BOD"), suspended solids, fecal coliform, and pH.³¹ In addition, EPA has designated oil and grease as conventional pollutants.³² Under Section 301(b)(2)(E) of the Clean Water Act, effluent limitations for such conventional pollutants based on best conventional pollutant control technology ("BCT") were to have been achieved by March 31, 1989.³³ Among the factors that EPA is to consider in establishing effluent limitations based on BCT is the reasonableness of the relationship between the cost of attaining a reduction in the effluents and the effluent reduction benefits

28. See 33 U.S.C. §§ 1311(b)(2)(A), (C), (D) and (F) (2001).

29. 33 U.S.C. § 1311(b)(2)(A) (2001).

30. 33 U.S.C. § 1314(b)(2)(B) (2001).

31. 33 U.S.C. § 1314(a)(4) (2001).

32. See 40 C.F.R. § 401.16 (2001).

33. 33 U.S.C. § 1311(b)(2)(E) (2001).

derived.³⁴ As such, BCT-based effluent limitations for conventional pollutants are generally less stringent than effluent limitations for conventional pollutants that would have resulted from use of BAT.

New point source discharges are subject to new source performance standards (“NSPS”) under Section 306 of the Clean Water Act. New source performance standards are standards that reflect the greatest degree of effluent reduction which EPA determines to be achievable through the application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard prohibiting the discharge of pollutants.³⁵ In general, new point source discharges are subject to the greatest restrictions because permittees can incorporate top-of-the-line pollution control techniques into the design of a new facility more economically and effectively than retrofitting existing operations.

EPA has adopted effluent guidelines for more than fifty categories of industrial operations.³⁶ These effluent guidelines cover many but not all facilities. Where national effluent guidelines do not exist, the regulatory entity issuing an NPDES permit is to establish technology-based limitations and standards on a case-by-case basis, using “best professional judgement.”³⁷

(2) Water Quality–Based Effluent Limits

Separate and apart from permit conditions resting on technology based effluent limitations, a permitting entity may impose discharge restrictions where necessary to achieve water quality standards or in connection with implementing a Total Maximum Daily Load (“TMDL”) for the receiving water body. As part of establishing water quality standards, states are required to designate the intended uses of surface water bodies within their boundaries, including potential uses for public water supplies, propagation of fish and wildlife, recreational purposes, and other uses.³⁸ The states are then to develop specific water quality criteria (typically numerical concentrations of particular pollutants) that will protect public health and welfare and enhance the quality of the water in light of the designated uses.³⁹ Where numerical criteria are not available, states are to adopt criteria (at least for toxic

34. 33 U.S.C. § 1314(b)(4)(B) (2001).

35. See 33 U.S.C. 1316(a)(1) (2001).

36. See 40 C.F.R. Parts 405–471 (2001).

37. See 40 C.F.R. § 125.3 (2001).

38. 33 U.S.C. § 1313(c)(2)(A) (2001).

39. *Id.*

pollutants) based on biological monitoring or assessment methods.⁴⁰ Where water quality standards will not be achieved through the use of technology-based permit limits, the permitting entity is to impose alternative effluent limitations that can reasonably be expected to contribute to the attainment or maintenance of such water quality standards.⁴¹

In addition, under Section 303(d) of the Clean Water Act, the states are to identify impaired waters and develop TMDLs for such waters.⁴² Impaired waters are those waters where the imposition of effluent limits based on BPT will not result in attaining water quality standards.⁴³ For such waters, the states are to develop TMDLs which establish levels "necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality."⁴⁴ The process of establishing TMDLs is to take into account all sources of pollutants to a particular water body, including non-point sources. In a TMDL analysis, non-point sources can include air-borne deposition of pollutants, historic pollutant deposition (such as present in sediments), and tributary contributions. Once such a "budget" has been established, discharge permits are to include effluent limits that will allow the water body to attain applicable water quality standards by allocating permissible pollutant loadings among all sources of such pollutants.

Responsibility for implementing, administering, and enforcing the Clean Water Act is shared between EPA and the states. As described above, the states are assigned certain tasks such as developing water quality standards and preparing TMDLs. EPA generally reviews and approves or disapproves the states' work product. Where the states fail to act or do not meet the requirements of the Clean Water Act, Congress has typically directed EPA to step in and take over the process. In the permitting arena, the states may obtain approval from EPA to assume primary responsibility for reviewing permit applications and issuing permits.⁴⁵ Over forty states, including Pennsylvania, are authorized to administer the base NPDES permit program. Certain classes of permits issued by approved states are subject to review by EPA. EPA and authorized states may enforce the permit requirements.

40. 33 U.S.C. § 1313(c)(2)(B) (2001).

41. 33 U.S.C. § 1312(a) (2001).

42. 33 U.S.C. § 1313(d) (2001).

43. *Id.*

44. 33 U.S.C. § 1313(d)(1)(C) (2001).

45. *See* 33 U.S.C. §§ 1342(b) and (c) (2001).

In addition, private parties may enforce permit requirements through the citizen suit provisions of the Clean Water Act.⁴⁶

2. Regulation of Agricultural Operations Under the Clean Water Act

From its inception, the Clean Water Act has included “concentrated animal feeding operations” within the definition of a “point source.”⁴⁷ However, the Clean Water Act does not include a definition of the term “concentrated animal feeding operations.”⁴⁸ In addition, Section 306 of the Clean Water Act specifically lists “feedlots” as a type of new source for which EPA is required to develop technology-based effluent guidelines.⁴⁹

a. National Effluent Guidelines for Feedlots

In 1974, EPA issued national effluent limitations and guidelines for feedlots.⁵⁰ The effluent guidelines address pollutants from certain large-scale animal feeding operations involving beef cattle, dairy cattle, swine, sheep, horses, chickens, and turkeys. Specifically, the regulations cover feedlots with capacities at least as large as the following:

- Slaughter steers and heifers – 1,000 animals;
- Mature dairy cattle – 700 animals;
- Swine weighing over 55 pounds – 2,500 animals;
- Sheep – 10,000 animals;
- Turkeys – 55,000 birds;
- Laying hens or broilers (when the facility has an unlimited continuous flow watering system) – 100,000 birds;
- Laying hens or broilers (when the facility has a liquid manure handling system) – 30,000 birds;
- Horses – 500 animals; and
- Operations involving a combination of cattle, swine over 55 pounds and sheep – 1,000 animal units.⁵¹

46. See 33 U.S.C. § 1365 (2001).

47. 33 U.S.C. § 1362(14) (2001).

48. See *id.*

49. See 33 U.S.C. § 1316(b)(1)(A) (2001).

50. These regulations are found at 40 C.F.R. Part 412 (2002).

51. 40 C.F.R. § 412.10 (2002). The number of animal units at a particular facility is determined by adding the number of individual animals multiplied by specified factors for those animals. The multiplication factors are as follows: slaughter and feeder cattle – 1.0; mature dairy cattle – 1.4; swine weighing over 55 pounds – 0.4; sheep – 0.1; and horses – 2.0. See 40 C.F.R. Part 122, Appendix B.

EPA has defined a “feedlot” as a “concentrated, confined animal or poultry growing operation for meat, milk or egg production, or stabling, in pens or houses wherein the animals or poultry are fed at the place of confinement and crop or forage growth or production is not sustained in the area of confinement.”⁵² In addition, EPA has defined “process waste water” to encompass “any process generated waste water and any precipitation (rain or snow) which comes into contact with any manure, litter or bedding, or any other raw material or intermediate or final material or product used in or resulting from the production of animals or poultry or direct products (*e.g.*, milk, eggs).”⁵³ “Process generated waste water” includes “water directly or indirectly used in the operation of the feedlot for any or all of the following: Spillage or overflow from animal or poultry watering systems; washing, cleaning or flushing pens, barns, manure pits or other feedlot facilities; direct contact swimming, washing or spray cooling of animals; and dust control.”⁵⁴

The technology-based effluent limitations that EPA has developed for feedlots subject to regulation are relatively straightforward. Specifically, the effluent limitations based on BPT (best practicable control technology currently available) prohibit any discharge of process waste water pollutants to navigable waters, except that process waste pollutants in overflow may be discharged whenever rainfall events, either chronic or catastrophic, cause an overflow of process waste water from a facility designed, constructed, and operated to contain all process generated waste waters plus the runoff from a 10-year, 24-hour rainfall event.⁵⁵ The effluent limitations based on BAT (best available technology economically available) are the same except that a facility must be designed, constructed, and operated to contain all process generated waste water plus the runoff from a 25-year, 24-hour rainfall event.⁵⁶ New sources must meet the same standards as those based on BAT.⁵⁷

Feedlots that have a capacity of five thousand or more ducks are addressed separately in EPA’s effluent guidelines.⁵⁸ In general, the effluent limits for such feedlots that qualify as new sources mirror those for other types of covered feedlots. However, EPA has developed

52. 40 C.F.R. § 412.11(b) (2001).

53. 40 C.F.R. § 412.11(c) (2001).

54. 40 C.F.R. § 412.11(d) (2001).

55. 40 C.F.R. § 412.12 (2001).

56. 40 C.F.R. § 412.13 (2001).

57. *See* 40 C.F.R. § 412.15 (2001).

58. *See* 40 C.F.R. Part 412, subpart B (2001).

specific, numeric limits for fecal coliform and five-day biological oxygen demand based on BPT.⁵⁹

b. NPDES Permit Requirements for Concentrated Animal Feeding Operations

In 1976, EPA issued regulations governing the issuance of NPDES permits for concentrated animal feeding operations.⁶⁰ The regulations provide criteria for determining whether a facility qualifies as a “concentrated animal feeding operation” (“CAFO”) and is therefore subject to the NPDES permit program. CAFOs are defined as “animal feeding operations” (“AFOs”) that meet certain criteria.⁶¹ An AFO is defined as a lot or facility where non-aquatic animals have been, are, or will be stabled or confined and fed or maintained for a total of forty-five days or more in any twelve month period, and crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.⁶²

An AFO can qualify as a CAFO in one of several ways. First, an AFO that confines more than the following amounts of livestock or poultry automatically qualifies as CAFO:

- Slaughter and feeder cattle – 1,000 animals;
- Mature dairy cattle – 700 animals;
- Swine weighing over 55 pounds – 2,500 animals;
- Sheep or lambs – 10,000 animals;
- Turkeys – 55,000 birds;
- Laying hens or broilers (if the facility has continuous overflow watering) – 100,000 birds;
- Laying hens or broilers (if the facility has a liquid manure handling system) – 30,000 birds;
- Ducks – 5,000 birds;
- Horses – 500 animals; and
- Combinations of animals – 1,000 animal units.⁶³

Second, an AFO qualifies as a CAFO if either (1) pollutants are discharged into navigable waters through a manmade ditch, flushing system, or other similar manmade device, or (2) pollutants are

59. See 40 C.F.R. § 412.22 (2001).

60. These regulations are set forth generally at 40 C.F.R. § 122.23 (2001).

61. See 40 C.F.R. § 122.23(b)(3) (2001).

62. See 40 C.F.R. § 122.23(b)(1) (2001).

63. 40 C.F.R. Part 122, Appendix B (2001). These thresholds are the same thresholds used by EPA to define regulated feedlots. For a discussion of the definition of an “animal unit” pursuant to 40 C.F.R. Part 122, Appendix B (2001); see *supra* note 51 and accompanying text.

discharged directly into surface waters that originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation unless, in either case, the discharges occur only in the event of a 25-year, 24-hour storm event, and the AFO confines more than the following number of animals:

- Slaughter or feeder cattle – 300 animals;
- Mature dairy cattle – 200 animals;
- Swine weighing over 55 pounds – 750 animals;
- Sheep or lambs – 3,000 animals;
- Turkeys – 16,500 birds;
- Laying hens or broilers (if the facility has continuous overflow watering) – 30,000 birds;
- Laying hens or broilers (if the facility has a liquid manure handling system) – 9,000 birds;
- Ducks – 1,500 birds;
- Horses – 150 animals; and
- Combinations of animals – 300 animal units.⁶⁴

Third, EPA or a state authorized to administer the NPDES permit program may designate any AFO as a CAFO where there is a determination that the AFO is a significant contributor of pollution to waters of the United States (surface waters).⁶⁵ EPA's regulations include certain criteria that are to be considered in making such a case-by-case determination.⁶⁶ If the AFO has fewer than the number of animals specified in 40 C.F.R. Part 122, Appendix B,⁶⁷ it may not be designated as a CAFO unless pollutants are discharged into surface waters through a manmade ditch, flushing system, or other similar manmade device, or pollutants are discharged directly into surface waters that originate outside of the facility and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.⁶⁸

3. Recent Developments Regarding the Regulation of Agricultural Operations under the Clean Water Act

During the past several years, EPA has focused substantial attention and resources on the proliferation of AFOs and the threat of pollution associated with such facilities. In part, this has been the result

64. *Id.*

65. 40 C.F.R. § 122.23(c) (2002).

66. *Id.*

67. *See supra* note 61 and accompanying text.

68. 40 C.F.R. § 122.23(c)(2) (2002).

dinoflagellate harmful to fish and humans, which resulted in massive fish kills in North Carolina and Maryland in 1997.

In December 1995, EPA issued a document entitled "Guide Manual on NPDES Regulations for Concentrated Animal Feeding Operations."⁶⁹ In early 1998, the Clinton Administration released its Clean Water Action Plan.⁷⁰ The Clean Water Action Plan indicated that polluted runoff is the greatest source of water quality problems in the United States and that stronger controls for polluted runoff are needed, including expanded permit controls for CAFOs.⁷¹

In March 1998, EPA issued two documents describing steps to address water quality impacts from AFOs. First, EPA issued a document entitled "Draft Strategy for Addressing Environmental and Public Health Impacts from Animal Feeding Operations."⁷² Second, EPA issued a document entitled "Compliance Assurance Implementation Plan for Concentrated Animal Feeding Operations" describing compliance and enforcement efforts to ensure that CAFOs satisfy existing requirements under the Clean Water Act.⁷³

In September 1998, EPA and USDA published in draft form a document entitled "Unified National Strategy for Animal Feeding Operations" (hereinafter "Unified AFO Strategy"). This document was issued in final form on March 9, 1999.⁷⁴ The Unified AFO Strategy contains a blue print for various actions that are designed to minimize water pollution from AFOs. Facilitating the development and implementation of comprehensive nutrient management plans ("CNMPs") by all AFOs is a core component of the Unified AFO Strategy. The Unified AFO Strategy identified seven strategic issues to be addressed, as follows:

69. In 2000, EPA issued an interim final version of a document entitled "Guidance Manual and Sample NPDES Permit for Concentrated Animal Feeding Operations" (September 21, 2000) which, by its terms, replaced the Guide Manual on NPDES Regulations for Concentrated Animal Feeding Operations. The interim final guidance document is available at http://www.epa.gov/npdes/pubs/dman_afa-2000.pdf.

70. See U.S. Environmental Protection Agency, *Clean Water Action Plan: Restoring and Protecting America's Waters*, Publication No. 840R98001, National Service Center for Environmental Publications, Cincinnati, Ohio.

71. *Id.*

72. U.S. Environmental Protection Agency, *Draft Strategy for Addressing Environmental and Public Health Impacts from Animal Feeding Operations* (March 1, 1998), available at <http://www.epa.gov/npdes/pubs/astat.pdf>.

73. U.S. Environmental Protection Agency, *Compliance Assurance Implementation Plan for Concentrated Animal Feeding Operations* (March 1, 1998), at <http://www.epa.gov/npdes/pubs/strategy.htm>.

74. U.S. Environmental Protection Agency & United States Department of Agriculture, *Unified National Strategy for Animal Feeding Operations* (March 9, 1999), available at <http://www.epa.gov/npdes/pubs/finafost.htm>.

implementation of comprehensive nutrient management plans (“CNMPs”) by all AFOs is a core component of the Unified AFO Strategy. The Unified AFO Strategy identified seven strategic issues to be addressed, as follows:

- Fostering the development and implementation of CNMPs;
- Accelerating voluntary, incentive-based programs;
- Implementing and improving the existing regulatory program;
- Coordinating research, technical innovation, compliance assistance, and technology transfer;
- Encouraging industry leadership;
- Increasing data coordination; and
- Establishing better performance measures and greater accountability.⁷⁵

The Unified AFO Strategy endorses the use of an array of different tools ranging from voluntary incentive-based programs to traditional command-and-control regulatory programs.⁷⁶ For a majority of AFOs (typically relatively small operations), the Unified AFO Strategy indicates that voluntary incentive-based programs may be sufficient to achieve the goal of minimizing impacts to water quality from such AFOs.⁷⁷ However, the Unified AFO Strategy also recognizes the need to strengthen the current permitting system for CAFOs.⁷⁸

4. Proposed Amendments to EPA’s Regulations Governing CAFOs

On January 12, 2001, EPA published proposed changes to its regulations governing CAFOs under the Clean Water Act.⁷⁹ These changes have proved to be highly controversial. The public comment period on the proposed regulations closed on July 30, 2001. Based on information provided by EPA, approximately twelve thousand sets of public comments were submitted to EPA during the public comment period.

The amendments to existing regulations proposed by EPA address both NPDES permitting requirements and technology-based effluent guidelines. While EPA has proposed to retain the existing structure of the current regulations, EPA has proposed to make significant changes

75. *Id.*

76. *Id.*

77. *Id.*

78. *Id.*

79. *See* 66 Fed. Reg. 2960 (Jan. 12, 2001).

in both the requirements found within the regulations and the scope of the regulations.

As with the existing regulations under the Clean Water Act, the proposed amendments focus on potential discharges from CAFOs. EPA has proposed alternative definitions for CAFOs.⁸⁰ One option (the so-called three tier structure) is similar to the current definition of a CAFO with a number of key exceptions, as follows:

- Veal cattle and immature swine (less than 55 pounds) are included as specific categories of animals for purposes of determining the applicability of the regulations. Operations that have at least 1,000 veal cattle or 10,000 immature swine (1,000 animal units) automatically qualify as CAFOs. The “tier one” thresholds for AFOs having other types of livestock and poultry would remain as they are.
- AFOs having fewer animals than the “tier one” thresholds previously described also will qualify as CAFOs if they have 300 veal cattle, 3,000 immature swine, or other types of livestock and poultry in amounts currently included in the regulations (300 to 1,000 animal units), unless they certify that (1) waters of the United States (surface waters) do not come in direct contact with the animals, (2) there is sufficient storage and containment to prevent all pollutants from the production area from entering waters of the United States in accordance with applicable effluent guidelines, (3) there has not been a discharge from the production area within the past five years, (4) no part of the production area is located within 100 feet of waters of the United States, (5) manure or wastewaters will be land applied in accordance with a Permit Nutrient Plan, and (6) they are in compliance with certain requirements relating to the off-site transfer of manure or process-generated wastewater.
- As with the current regulations, EPA or a state with an approved NPDES permit program may designate any AFO as a CAFO provided that certain criteria are satisfied. EPA is evaluating whether to retain the prohibition that an AFO with less than 300 animal units may not be designated as a CAFO unless pollutants are discharged into waters of the United States through a manmade ditch, flushing system, or similar manmade

80. 66 Fed. Reg. 2960, 3135-36 (Jan. 12, 2001).

device, or pollutants are discharged directly into waters of the United States which originate outside of the facility and pass over, across, or through the facility or otherwise come into direct contact with the animals confined by the AFO.⁸¹

The other option to define a CAFO proposed by EPA for comment is the so-called “two tier” system.⁸² Under this system, an AFO would qualify as a CAFO either because it has more than the following amounts of livestock and poultry (equivalent to 500 animal units), or is specifically designated as a CAFO by EPA or a state with an approved NPDES permit program on a case-by-case basis using the criteria set forth in the regulations.⁸³ The thresholds under this option for determining whether an AFO qualifies as a CAFO are as follows:

- Mature dairy cattle – 300 animals;
- Veal – 500 animals;
- Cattle other than veal or mature dairy cattle – 500 animals;
- Swine weighing over 55 pounds – 1,250 animals;
- Swine weighing less than 55 pounds – 5,000 animals;
- Sheep or lambs – 5,000 animals;
- Turkeys – 27,500 birds;
- Chickens – 50,000 birds;
- Ducks – 2,500 birds; and
- Horses – 250 animals.⁸⁴

Under the proposed regulations, AFOs are expressly defined to include both production areas (animal confinement areas, manure storage areas, raw materials storage areas, and waste containment storage areas) and land application areas (land under the control of the owner or operator, whether owned, rented, or leased, to which manure and process waste water is or may be applied).⁸⁵ These changes bring within the definition of an AFO property owned by third parties but rented or controlled by the owner or operator of an AFO to which manure is or may be applied. In addition, EPA has proposed to include within the definition of an operator of a CAFO a person who exercises substantial operational control over the CAFO.⁸⁶ Factors to be considered in making such a determination include identifying who

81. *Id.*

82. *Id.*

83. *Id.*

84. *Id.*

85. 66 Fed. Reg. 2960, 3135 (Jan. 12, 2001).

86. *Id.* at 3136.

directs the activities of the persons working at the CAFO, who owns the animals, and who specifies how the animals are to be grown, fed, or medicated.⁸⁷ EPA has also proposed to clarify that to qualify for the “agricultural stormwater discharge” exception under the Clean Water Act, the discharge from land where manure from an AFO or CAFO has been applied must be composed entirely of stormwater, and the manure must have been applied in accordance with proper agricultural practices, including nitrogen or phosphorus-based application rates.⁸⁸

If an AFO qualifies as a CAFO, the owner or operator must apply for and obtain either an individual NPDES permit or operate under a general NPDES permit, as available, unless EPA or a state with an authorized NPDES permit program has made an individual determination that the AFO has no “potential to discharge.”⁸⁹ In evaluating whether an AFO has the potential to discharge, the proposed regulations direct that potential discharges to groundwater that have a direct hydrologic connection to surface waters are to be considered.⁹⁰ Moreover, a person who exercises substantial control over the CAFO must apply for an NPDES permit as a co-permittee.⁹¹

CAFOs operating under NPDES permits will be required to prepare and implement site-specific Permit Nutrient Plans, prepared or approved by certified planners, governing the use of the nutrients that are generated.⁹² For manure transferred to third persons, EPA has proposed two alternatives. Under the first alternative, recipients of the manure must certify that they are applying the manure in accordance with proper agricultural practices unless such requirements are waived on the basis of a state program covering the proper application of such manure.⁹³ Under the second alternative, CAFOs must simply maintain certain records relating to the transfer of the manure.⁹⁴

In addition to NPDES permit requirements for CAFOs, EPA has proposed to make significant changes to the technology-based effluent limitations for CAFOs. For beef, dairy, veal, swine and poultry operations, EPA has proposed to include detailed requirements for areas owned or under the control of the CAFO where manure or process wastewater will be land applied.⁹⁵ These requirements include

87. *Id.*

88. *Id.* at 3135.

89. *Id.* at 3136.

90. *Id.*

91. *Id.* at 3136-37.

92. *Id.* at 3137.

93. *Id.* at 3137-38.

94. *Id.*

95. *Id.* at 3141-45.

preparing and implementing a Permit Nutrient Plan that takes into account realistic crop yield goals and limits the application of manure in amounts that exceed the land-application rates determined by the Phosphorus Index, Phosphorus Threshold, or Soil Test Phosphorus methods.⁹⁶ Moreover, EPA has proposed to prohibit the application of manure within one hundred feet of any surface water, sinkhole, or agricultural well head.⁹⁷

For veal, swine and poultry operations, EPA has proposed under the standards for BAT (best available technology economically available) that no discharges be permitted from CAFO production areas under any circumstances.⁹⁸ EPA has also proposed that for new facilities, there be no discharge of pollutants from production areas to the groundwater having a direct hydrologic connection to surface waters and that groundwater monitoring be performed twice per year to evaluate whether this requirement is being satisfied.⁹⁹ For beef and dairy operations, EPA has proposed that no discharges from CAFO production areas (including to groundwater having a direct hydrological connection to surface waters) be permitted except overflows caused by a 25-year, 24-hour rainfall event.¹⁰⁰ EPA has also proposed that such operations conduct groundwater monitoring on a semi-annual basis.¹⁰¹

For beef, dairy, veal, swine and poultry operations, EPA has proposed requirements mandating that routine inspections be performed of CAFO production areas (including manure collection and storage areas).¹⁰² EPA has also proposed that surface impoundments must have depth markers indicating the design volume and minimum required freeboard.¹⁰³ In addition, EPA has proposed extensive new record-keeping requirements relating to routine inspections, operations, and preparation and implementation of Permit Nutrient Plans.¹⁰⁴

On November 21, 2001, EPA published in the Federal Register a lengthy document entitled "Notice of Data Availability" (hereinafter the "NODA") in connection with the proposed changes to the federal regulations governing CAFOs.¹⁰⁵ The NODA summarizes new data and information received by EPA during the public comment process

96. *Id.*

97. *Id.*

98. *Id.* at 3144.

99. *Id.*

100. *Id.* at 3142-43.

101. *Id.*

102. *Id.* at 3141-45.

103. *Id.*

104. *Id.*

105. *See* 66 Fed. Reg. 58556 (Nov. 21, 2001).

regarding the proposed amendments to the CAFO regulations. The NODA discusses changes under consideration by EPA to (1) the cost and economics model used by EPA, (2) the nutrient loading and benefits analysis used by EPA, (3) the proposed revisions to the NPDES regulations for CAFOs, and (4) the proposed revisions to the effluent guidelines for feedlots.¹⁰⁶ EPA identified a broad range of issues posed by the information presented in the NODA and invited public comment concerning these issues until January 15, 2002.¹⁰⁷

The NODA suggests that EPA is considering making substantial revisions to the proposed amendments to the regulations governing CAFOs. For example, EPA included in the NODA a number of options for public comment regarding the manner in which the implementation of environmental management systems (“EMS”) might be integrated into the regulations governing CAFOs to provide regulated entities with greater flexibility in meeting permitting requirements under the Clean Water Act.¹⁰⁸ EPA also discussed concerns raised by many States regarding the need to allow non-NPDES state regulatory programs covering operations at CAFOs to remain in place in lieu of federal NPDES requirements.¹⁰⁹

EPA is required by a court order to take final action regarding the proposed amendments to the effluent guidelines for feedlots by December 15, 2002.¹¹⁰ EPA anticipates taking final action regarding the proposed amendments to the NPDES permitting regulations for CAFOs at the same time.¹¹¹ It is difficult to predict what specifically the final regulations will require, although significant changes to the existing regulations appear almost certain to be promulgated. Moreover, given the level of public participation and interest that the proposed amendments have generated, whatever EPA ultimately decides to do is likely to generate controversy and perhaps litigation. Once the proposed amendments go into effect, states such as Pennsylvania that have approved NPDES programs will be required to adopt conforming regulatory (and statutory changes as necessary) to reflect EPA’s new requirements.

106. *Id.*

107. *See id.*

108. *Id.*

109. *Id.*

110. U.S. Environmental Protection Agency, *Fact Sheet – Notice of Data Availability Concerning Proposed National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations* (November 2001), available at http://www.epa.gov/npdes/pubs/noda_factsheet.pdf.

111. *Id.*

IV. Nutrient Management Requirements Under Pennsylvania Law

Pennsylvania's nutrient management program focuses on manure management with particular emphasis on concentrated animal operations. Pennsylvania's program borrows concepts from the federal program but also has many of its own features.

A. *Historical Regulation of Nutrient Management in Pennsylvania*

1. The Clean Streams Law

Nutrient management in Pennsylvania is not a new concept. The Pennsylvania Clean Streams Law ("CSL") was originally adopted in 1937 and includes provisions directly relevant to nutrient management.¹¹² Section 201 of the CSL prohibits the discharge of sewage to any "waters of the Commonwealth" except in accordance with the requirements of the CSL.¹¹³ "Waters of the Commonwealth" are broadly defined to include any surface waters (streams, rivers, lakes, ponds, and wetlands) and groundwater.¹¹⁴ Sewage is defined to include animal wastes.¹¹⁵ In addition, Section 401 of the CSL prohibits any discharge of a substance that will result in pollution of surface waters or groundwater.¹¹⁶

Regulations implementing the CSL authorize the land application of manure without permits or approvals provided that the land application of manure is consistent with practices set forth in a document entitled "Manure Management for Environmental Protection."¹¹⁷ This document is commonly referred to as the "Manure Manual." The Pennsylvania Department of Environmental Resources ("DER"), as the predecessor agency to DEP, originally issued the Manure Manual. The Manure Manual was developed for DER by technical specialists employed by the United States Department of Agriculture Soil Conservation Service and the Cooperative Extension Service of the Pennsylvania State University with input from a wide range of additional individuals. If manure is land applied using criteria other than those described in the Manure Manual, prior approval or a permit from DEP is required.¹¹⁸

112. Pennsylvania Clean Streams Law, 35 P.S. §§ 691.1–691.1001 (2001).

113. 35 P.S. § 691.201 (2001).

114. 35 P.S. § 691.1 (2001).

115. *Id.*

116. 35 P.S. § 691.401 (2001).

117. *See* 25 Pa. Code § 91.36(b) (2001).

118. *Id.*

In addition, regulations adopted under the CSL address manure storage facilities. Specifically, waste storage ponds must maintain a twelve-inch freeboard and waste storage structures must maintain a six-inch freeboard.¹¹⁹ These requirements apply to agricultural facilities that contain less than 1,001 animal equivalent units,¹²⁰ or that were in operation before January 29, 2000, and were designed in accordance with the "Pennsylvania Technical Guide" and addenda and amendments thereto.¹²¹

Water quality permits under the CSL are required for some but not all manure storage facilities. Water quality permits are not required for manure storage facilities that are designed and operated in accordance with the Manure Manual, the Pennsylvania Technical Guide, addenda or amendments thereto, and regulations under the Nutrient Management Act (discussed *infra*), as applicable, provided that such facilities are designed to prevent discharges to surface waters during storm events of less than the 25-year, 24-hour storm.¹²² Water quality permits are also not required for manure storage facilities at animal operations that had over one thousand animal equivalent units on or before January 29, 2000, provided that a registered professional engineer certifies that the design and construction of the manure storage facility is consistent with the Pennsylvania Technical Guide.¹²³ By contrast, water quality permits under the CSL are required for the design, construction, or operation of any new or expanded animal manure storage facility at an agricultural operation with more than one thousand animal equivalent units and for manure storage facilities that are designed or constructed using criteria other than those described in the Manure Manual, the Pennsylvania Technical Guide, and addenda thereto.¹²⁴

Finally, regulations promulgated under the CSL govern the development and implementation of erosion and sediment control measures for earth disturbance activities that may cause accelerated soil erosion and sedimentation.¹²⁵ Such activities include agricultural plowing and tilling activities that may accompany the land application

119. See 25 Pa. Code § 91.36(d) (2001).

120. An animal equivalent unit is defined as one thousand pounds live weight of livestock or poultry animals, regardless of the actual number of individual animals comprising the unit, as defined in the Nutrient Management Act (discussed *infra*). See 25 Pa. Code § 91.1 (2001).

121. See 25 Pa. Code § 91.36(d) (2001). The Pennsylvania Technical Guide is a guidance document that contains technical specifications and guidance relating to the construction and operation of facilities associated with agricultural operations.

122. See 25 Pa. Code § 91.36(a) (2001).

123. *Id.*

124. *Id.*

125. See generally 25 Pa. Code Chapter 102 (2001).

of manure. For agricultural plowing and tilling that will disturb less than five thousand square feet of land, erosion and sedimentation control best management practices (“BMPs”) must be implemented and maintained.¹²⁶ For agricultural plowing and tilling activities that will disturb at least five thousand square feet of land, a written Erosion and Sediment Control Plan must be prepared and implemented.¹²⁷ In such a context, an Erosion and Sediment Control Plan is that portion of a conservation plan that identifies BMPs to minimize accelerated erosion and sedimentation.¹²⁸ The landowner and any other land occupier (such as a tenant, renter, or lessee) conducting or planning to conduct agricultural plowing or tilling activities are jointly and individually responsible for developing the Erosion and Sediment Control Plan.¹²⁹

2. The Solid Waste Management Act

The Pennsylvania Solid Waste Management Act (“SWMA”) also includes provisions directly relevant to nutrient management.¹³⁰ Under the SWMA, wastes from industrial, mining and agricultural operations are defined as “residual wastes.”¹³¹ Pennsylvania has adopted complex and detailed regulations governing the management of residual wastes.¹³²

To ameliorate the fact that agricultural wastes (including manure) qualify as residual wastes, the SWMA includes certain provisions that exempt from permit requirements the utilization of “agricultural waste” produced in the course of “normal farming operations.”¹³³ “Agricultural waste” is defined broadly to include poultry and livestock manure.¹³⁴ “Normal farming operations” are defined to include the “customary and generally accepted activities, practices and procedures that farms adopt, use, or engage in year after year in the production and preparation for market of poultry, livestock and their products.”¹³⁵ Thus, where manure from a “normal farming operation” is being used as a nutrient for crop production, a permit under the SWMA is not

126. 25 Pa. Code § 102.4(a)(1) (2001).

127. 25 Pa. Code § 102.4(a)(2) (2001).

128. 25 Pa. Code § 102.1 (2001).

129. 25 Pa. Code § 102.4(a)(3) (2001).

130. Pennsylvania Solid Waste Management Act, 35 P.S. 6018.101 – 6018.1003.

131. 35 P.S. § 6018.103 (2001).

132. See 25 Pa. Code Chapters 287–299 (2001).

133. See 35 P.S. § 6018.501(a) (2001).

134. 35 P.S. § 6018.103 (2001).

135. *Id.*

required for the disposal of such manure.¹³⁶

The residual waste regulations include provisions exempting from permitting and generator requirements “[a]gricultural waste produced in the course of normal farming operations, if the waste is not hazardous.”¹³⁷ Moreover, the regulations provide that “[a]n agricultural waste will be presumed to be produced in the course of normal farming operations if its application is consistent with that for normal farming operations.”¹³⁸

The residual waste regulations include extensive requirements relating to the storage and transportation of residual wastes.¹³⁹ The storage requirements contain comprehensive standards for residual waste storage impoundments, including standards for liners and groundwater monitoring.¹⁴⁰ The residual waste regulations do not expressly exempt the storage and transportation of manure from the requirements of 25 Pa. Code Chapter 299. However, with respect to impoundments, the regulations promulgated under the Nutrient Management Act (discussed *infra*) contain different requirements for manure storage facilities that are subject to the Nutrient Management Act. It would therefore appear that manure storage facilities covered by the Nutrient Management Act are subject to the requirements thereunder, rather than to the requirements applicable to residual waste storage impoundments more generally.

B. *The Pennsylvania Nutrient Management Act*

1. Overview

Requirements relating to the management of manure were historically developed with the model of the “traditional” family farm in mind. With the rise of new models of livestock and poultry production, however, these requirements have become increasingly obsolete. Moreover, in response to local pressure, certain municipalities have attempted to step into the breach and impose local regulatory controls on concentrated animal operations.

Against this backdrop, the Pennsylvania legislature adopted the Pennsylvania Nutrient Management Act (“NMA”) in the spring of

136. The SWMA was passed in 1980. Whether “normal farming operations” as envisioned by the Pennsylvania General Assembly at that time would encompass the type of large, concentrated animal feeding operations now in vogue is an open question.

137. 25 Pa. Code § 287.101(b)(1) (2001).

138. *Id.*

139. *See* 25 Pa. Code Chapter 299 (2001).

140. *See* 25 Pa. Code §§ 299.141-299.145 (2001).

1993.¹⁴¹ As discussed in more detail below, the NMA contains a number of different facets. First, the NMA authorizes the State Conservation Commission (the “Commission”) in conjunction with DEP, the Pennsylvania Department of Agriculture (“PDA”), and the Nutrient Management Advisory Board (the “Advisory Board”) to develop regulations implementing the requirements of the statute.¹⁴²

Second, the NMA mandates that uniform nutrient management standards for “Concentrated Animal Operations” be established and requires that operators of such operations develop and implement nutrient management plans consistent with such standards.¹⁴³

Third, the NMA requires DEP to assess the impacts that various types of facilities and activities have had on surface waters and groundwater in Pennsylvania, including malfunctioning on-lot sewage systems, the application of chemical fertilizers for nonagricultural purposes, storm water runoff, and atmospheric deposition of nutrients, and to identify what regulatory or legislative initiatives DEP believes are necessary to abate pollution from such sources.¹⁴⁴

Fourth, the NMA requires PDA to establish a nutrient management certification program for individuals who have demonstrated competency in developing nutrient management plans, and it authorizes the creation of the Advisory Board.¹⁴⁵

Fifth, the NMA authorizes the Commission to provide financial assistance for the implementation of nutrient management plans for existing agricultural operations, and it authorizes the creation of the Nutrient Management Fund.¹⁴⁶

Sixth, the NMA broadly defines “unlawful conduct” under the NMA and provides for civil penalties and other remedies to address unlawful conduct.¹⁴⁷

Seventh, the NMA provides that compliance with an approved nutrient management plan is to be treated as a mitigating factor in any action for civil penalties or damages.¹⁴⁸

Eighth, the NMA authorizes the Pennsylvania Environmental Hearing Board to entertain appeals challenging orders and other

141. Pennsylvania Nutrient Management Act, 3 P.S. §§ 1701-1718 (2001). The NMA went into effect on July 19, 1993. *Id.*

142. 3 P.S. § 1704 (2001).

143. 3 P.S. §§ 1702, 1704, and 1706 (2001).

144. 3 P.S. § 1705 (2001).

145. 3 P.S. § 1707 and 1708 (2001).

146. 3 P.S. § 1709 (2001).

147. 3 P.S. §§ 1711 and 1712 (2001).

148. 3 P.S. § 1713 (2001).

administrative actions by the Commission.¹⁴⁹

Ninth, the NMA expressly preserves powers afforded to the Commission, PDA, DEP, and the Conservation Districts under the common law and other statutes, including the CSL and the SWMA.¹⁵⁰

Finally, the NMA preempts more stringent local regulation of practices relating to the storage, handling or land application of animal manure or nutrients, and the construction, location, or operation of facilities used to store animal manure or nutrients.¹⁵¹

Regulations implementing the NMA have been developed. These regulations are codified at 25 Pa. Code Chapter 83, Subchapter D and generally went into effect on October 1, 1997. They were published in the Pennsylvania Bulletin on June 27, 1997.¹⁵²

Both PDA and DEP have developed materials to help inform the agricultural community regarding the requirements of Pennsylvania's nutrient management program and the benefits that flow from proper nutrient management.

2. The "Nuts and Bolts" of Pennsylvania's Nutrient Management Program

a. Scope of the Nutrient Management Program

Concentrated Animal Operations ("CAOs") are required to develop nutrient management plans. A CAO is defined as an agricultural operation "where the animal density exceeds two AEU's per acre on an annualized basis."¹⁵³ At least 5% to 10% of the farms in Pennsylvania are estimated to qualify as CAOs.

An "AEU" is an "animal equivalent unit" which is defined as "[o]ne thousand pounds live weight of livestock or poultry animals, regardless of the actual number of individual animals comprising the unit."¹⁵⁴ An "AEU per acre" is defined as "[a]n animal equivalent unit per acre of cropland or acre of land suitable for application of animal manure."¹⁵⁵ The procedures for calculating the number of AEU's for an agricultural operation are described in detail in the regulations implementing the NMA.¹⁵⁶ The regulations contain standard weights

149. 3 P.S. § 1715 (2001).

150. 3 P.S. § 1716 (2001).

151. 3 P.S. § 1717 (2001).

152. See 27 Pa. Bull. 3161 (June 27, 1997).

153. 25 Pa. Code § 83.201 (2001).

154. *Id.*

155. *Id.*

156. See 25 Pa. Code § 83.262(a)(1) (2001).

for various types of livestock and poultry that can be used for purposes of these calculations.¹⁵⁷ It is important to note that AEUs are based on a daily average taken over an entire year. Accordingly, if production only occurs during a portion of the year, the number of AEUs for the operation will be lower than if production were to occur throughout the year.¹⁵⁸

The procedures for calculating the number of AEUs per acre for an agricultural operation are described in detail in the regulations under the NMA.¹⁵⁹ In general, these procedures involve dividing the total number of AEUs by the total number of acres of land "suitable for the application of manure."¹⁶⁰ Such land is defined as follows:

[L]and in the management control of the operator, that meets the following criteria:

(A) The land is cropland, hayland or pastureland that is an integral part of the agricultural operation, as demonstrated by title, rental agreements, crop records or form [sic] provided by the Commission.

(B) The land is or will be used for the application of manure generated by the agricultural operation.¹⁶¹

Farmstead areas and forested lands are not included within the definition of lands "suitable for the application of manure."¹⁶²

In addition to CAOs, the requirements relating to nutrient management plans apply in the following contexts:

- Agricultural operations that while not CAOs, nevertheless wish to voluntarily take advantage of certain benefits afforded under the NMA by opting to have approved nutrient management plans;
- Agricultural operations that receive financial assistance under the NMA or the Chesapeake Bay Nonpoint Source Pollution Abatement Program; and

157. 25 Pa. Code § 83.262 (2001) (Table A).

158. The approach under the NMA of using the density of animals at a particular operation to determine threshold applicability issues stands in contrast to EPA's approach under the Clean Water Act of using the total number of animals at an operation to determine whether the operation qualifies as a CAFO.

159. See 25 Pa. Code § 83.262(a)(2) (2001).

160. *Id.*

161. *Id.*

162. *Id.*

- Agricultural operations found to be in violation of the CSL that submit compliance plans.¹⁶³

b. Timetable for Preparing Nutrient Management Plans

Any CAO in existence on October 1, 1997, was required to submit to either the Commission or a delegated county conservation district a nutrient management plan by October 1, 1998.¹⁶⁴ Any CAO that came into existence after October 1, 1997, was required to submit to either the Commission or a delegated county conservation district a nutrient management plan by January 1, 1998, or prior to the commencement of manure operations, whichever was later.¹⁶⁵

Any CAO that comes into existence in the future must submit to either the Commission or a delegated county conservation district a nutrient management plan prior to the commencement of manure operations.¹⁶⁶ In addition, any agricultural operation which, because of expansion of animal units or loss of land suitable for manure application, qualifies as a CAO must submit to either the Commission or a delegated county conservation district a nutrient management plan within three months after the date of completion of the expansion or the loss of land.¹⁶⁷

c. Contents of Nutrient Management Plans

The preparation and implementation of nutrient management plans is the centerpiece of the NMA. Nutrient management specialists certified in accordance with PDA's Nutrient Management Specialist Certification requirements must develop nutrient management plans and amendments thereto.¹⁶⁸ The specialists must certify that nutrient management plans are in accordance with the NMA and the regulations thereunder.¹⁶⁹

Nutrient management plans must include the following:

- Specific information about the agricultural operation that

163. See 25 Pa. Code § 83.202 (2001).

164. 25 Pa. Code § 83.261(a) (2001).

165. 25 Pa. Code § 83.261(b) (2001).

166. *Id.*

167. 25 Pa. Code § 83.261(c) (2001).

168. See 25 Pa. Code § 83.261(e) (2001).

169. *Id.*

is to be covered by the plan, including the name of the operator, the location of the farm, the types of soils on the farm, the number of AEU's, the number of acres to which manure will be applied, the name of the nutrient specialist who prepared the plan, and the location of certain environmental features such as streams and special protection waters.¹⁷⁰

-
- A summary of the nutrient management plan.¹⁷¹
-
- A detailed analysis of proposed nutrient application methods, including nutrients available, nutrient needs for crop production, application rates, and procedures to be followed.¹⁷²
-
- A detailed description of how excess manure will be handled, including the identification of persons to whom excess manure may be transferred for use in agricultural operations or otherwise.¹⁷³
-
- An evaluation of existing manure management practices and a list of best management practices ("BMPs") that are to be used to prevent surface water or groundwater pollution.¹⁷⁴
-
- An evaluation of the adequacy of existing field runoff control practices and a list of runoff control BMPs that are to be used in critical runoff control areas.¹⁷⁵

In a booklet prepared by DEP entitled "Making Nutrient Management Work for You: Getting More From Animal Manure & Fertilizer,"¹⁷⁶ the following ten steps are recommended as part of developing a nutrient management plan:

- 1) Test your soil.
- 2) Have your animal manure analyzed.

170. See 25 Pa. Code § 83.281 (2001).

171. See 25 Pa. Code § 83.282 (2001).

172. See 25 Pa. Code §§ 83.291-83.294 (2001).

173. See 25 Pa. Code § 83.301 (2001).

174. See 25 Pa. Code § 83.311 (2001).

175. See 25 Pa. Code § 83.321 (2001).

176. Department of Environmental Protection, *Making Nutrient Management Work for You: Getting More From Animal Manure & Fertilizer*, available from DEP.

- 3) Determine the value of the nutrients in the manure.
- 4) Consider residual nitrogen from previous legume crops and manure.
- 5) Determine how, when and at what rate the manure should be applied.
- 6) Determine what rate you should use to apply the manure.
- 7) Purchase any supplemental fertilizers you may need.
- 8) Calibrate your spreader.
- 9) Implement erosion and surface runoff control measures.
- 10) Conduct a yearly review of your plan.

d. Requirements for Storing Manure

Storage of manure prior to use can pose one of the more challenging aspects of effective nutrient management systems. The timing of the application of manure can have a significant impact on the availability of nutrients for crop production. In addition, wet weather or winter conditions may limit or preclude the ability of the operator to safely apply manure to the land during portions of the year. As a result, facilities to store manure in large quantities are often necessary.

As a general matter, new or expanded manure storage facilities must be “designed, constructed, located, operated, maintained, and, when no longer used for the storage of manure, removed from service, to prevent the pollution of surface water and groundwater, and the offsite migration of pollution.”¹⁷⁷ Design and operating standards are included in a guidance document entitled the “Pennsylvania Technical Guide.”

The regulations implementing the NMA contain a variety of siting criteria for manure storage facilities. In general, the siting criteria are more stringent for facilities associated with agricultural operations that came into existence after October 1, 1997, or come into existence in the future, than for agricultural operations that were in existence on or before October 1, 1997.¹⁷⁸ These siting criteria do not apply to reception pits and transfer pipes.¹⁷⁹ They include set-back limits from features such as surface water bodies, wells, sinkholes, property lines,

177. 25 Pa. Code § 83.351(a)(1) (2001).

178. See 25 Pa. Code § 83.351(a)(2) (2001).

179. *Id.*

and public water supply sources.¹⁸⁰

A written site-specific contingency plan, developed in accordance with the standards contained in the "Pennsylvania Technical Guide" and addressing actions to be taken in the event of a manure leak or spill from a manure storage facility, must be developed and kept onsite.¹⁸¹

While the regulations implementing the NMA include requirements that are designed to make the storage of manure safer, compliance with such requirements does not serve to insulate owners and operators from liability for environmental impacts that may occur if manure storage facilities leak or spill. For example, Section 316 of the CSL¹⁸² provides a basis for holding owners and operators of agricultural facilities strictly liable for abating any pollution to groundwater or surface water that is caused by their operations.¹⁸³

e. Record-Keeping Requirements

In conjunction with implementing nutrient management plans, the regulations under the NMA mandate that a variety of records be maintained. In general, these records must be retained by the agricultural operation for at least three years.¹⁸⁴ Documentation that must be maintained includes accurate records of the land application of nutrients, crop yields, and soil tests. Such documentation encompasses records of manure testing results, the location and number of acres of nutrient application, the months of nutrient application, the rates of nutrient application, annual crop yield levels, and annual manure production quantities.¹⁸⁵

If an agricultural operation produces excess manure that it transfers to a third party (such as a manure broker or another agricultural operation), the operator must complete manure transfer sheets.¹⁸⁶ Manure transfer sheets contain certain information pertaining to the generator of the manure and the nutrient content of the manure. The Commission has developed forms that are to be used for this purpose.

If manure is transferred to persons other than known landowners identified in the governing nutrient management plan, the manure

180. *Id.*

181. *See* 25 Pa. Code § 83.351(d) (2001).

182. 35 P.S. § 691.316 (2001).

183. *See generally* Adams Sanitation Co., Inc. v. Commonwealth of Pennsylvania, Department of Environmental Protection, 715 A.2d 390 (Pa. 1998).

184. *See* 25 Pa. Code § 83.341 (2001).

185. *See* 25 Pa. Code § 83.342 (2001).

186. *See* 25 Pa. Code § 83.343(a) (2001).

transfer sheets must be submitted to the agency that approved the nutrient management plan within one year after approval of the plan.¹⁸⁷ In all cases, manure transfer records are to be maintained by the manure exporter for three years.¹⁸⁸

Finally, exporters of manure are required to provide those receiving the manure with certain paperwork, including manure transfer sheets and informational materials on nutrient management (if the manure is to be land applied).¹⁸⁹

3. The Review and Approval Process for Nutrient Management Plans

Under the NMA, the Commission is vested with authority to review and approve nutrient management plans. Alternatively, the Commission may delegate to county conservation districts responsibility for reviewing and approving nutrient management plans.¹⁹⁰ In practice, it has been and is likely to continue to be the case that county conservation districts play a primary role in reviewing and approving nutrient management plans.¹⁹¹ The person reviewing a proposed nutrient management plan must be certified in accordance with PDA's certification requirements.¹⁹²

Within ten days after receipt of a proposed nutrient management plan or plan amendment, the reviewing agency is required to notify the operator of any missing or incomplete elements of the submission.¹⁹³ The regulations under the NMA do not specify what happens in the event that the reviewing agency misses the deadline for finishing its completeness review.

The reviewing agency must act on a proposed nutrient management plan or plan amendment within ninety days after receipt of a complete plan or plan amendment.¹⁹⁴ If the reviewing agency fails to act, the operator submitting the plan or plan amendment may begin to

187. See 25 Pa. Code § 83.343(c) (2001).

188. See *id.*

189. See 25 Pa. Code § 83.344 (2001).

190. See 25 Pa. Code § 83.241 (2001).

191. County conservation districts in many instances are unaccustomed to the role that they have been given in implementing the NMA. The process of reviewing and approving or rejecting nutrient management plans may involve complex procedural, legal, and technical issues. Moreover, the process may be quite contentious. As such, the county conservation districts may be thrust into an arena which is far different than the one in which they have traditionally operated.

192. See 25 Pa. Code § 83.361(a) (2001).

193. See 25 Pa. Code § 83.361(b) (2001).

194. See *id.*

implement the plan or plan amendment.¹⁹⁵ The operator may also resubmit the plan or plan amendment.¹⁹⁶ If the reviewing agency again fails to take action within ninety days after receipt, the plan or plan amendment is deemed approved.¹⁹⁷

The reviewing agency is authorized to approve, modify or disapprove proposed nutrient management plans or plan amendments. Approvals may only be granted where the plan or plan amendment is in conformance with the requirements in the NMA and the regulations thereunder.¹⁹⁸ If the reviewing agency modifies or disapproves a plan or plan amendment, it is required to provide a written explanation of its action.¹⁹⁹ If a proposed nutrient management plan or plan amendment submitted for the first time is disapproved, the operator has up to ninety days to resubmit a revised plan or plan amendment.²⁰⁰

Final actions by the Commission may be appealed to the Pennsylvania Environmental Hearing Board.²⁰¹ While actions by the Commission may be appealed to the Pennsylvania Environmental Hearing Board, the NMA does not expressly provide that actions by county conservation districts acting on behalf of the Commission may be likewise challenged. However, the Pennsylvania Environmental Hearing Board has ruled that where a county conservation district has taken action regarding a nutrient management plan, that action is on behalf of the Commission and therefore may be appealed to the Board under the NMA.²⁰²

Once approved, a nutrient management plan must be implemented within three years.²⁰³ In certain instances involving substantial capital improvements, this implementation schedule may be extended to five years.²⁰⁴

A nutrient management specialist must review nutrient management plans at least every three years.²⁰⁵ If the agricultural operations have changed, a plan amendment must be prepared and approved.²⁰⁶ In addition, amendments to nutrient management plans

195. See 25 Pa. Code § 83.361(e) (2001).

196. *Id.*

197. *Id.*

198. See 25 Pa. Code § 83.361(c) (2001).

199. See 25 Pa. Code § 83.361(b) (2001).

200. See 25 Pa. Code § 83.361(d) (2001).

201. See 3 P.S. § 1715 (2001).

202. See *Ziviello v. Commonwealth of Pennsylvania, Department of Environmental Protection*, 1998 EHB 1011 (1998).

203. See 25 Pa. Code § 83.362(a) (2001).

204. *Id.*

205. See 25 Pa. Code § 83.362(c) (2001).

206. See 25 Pa. Code § 83.371(a) (2001).

must be prepared and approved in the event that significant changes occur in the management of nutrients.²⁰⁷ For example, events triggering the need to develop plan amendments include the following:

- 1) A net increase in AEU's per acre of more than 10%;
- 2) A change in crop management that reduces the need for nitrogen by more than 20%;
- 3) A change in the method of excess manure utilization;
- 4) The identification of errors in the original nutrient management plan;
- 5) The use of different BMPs for manure management or storm water management; or
- 6) Actual crop yields of less than 80% of expected crop yields.²⁰⁸

The regulations implementing the NMA include provisions authorizing temporary plan amendments based on unforeseen circumstances.²⁰⁹ Such amendments may be implemented without prior approval of the reviewing agency.²¹⁰

4. Enforcement of Nutrient Management Requirements

Section 11 of the NMA provides that “[i]t shall be unlawful to fail to comply with or to cause or assist in the violation of any order or any of the provisions of this act or the rules and regulations adopted under this act or to fail to comply with a nutrient management plan.”²¹¹

Section 12 of the NMA authorizes the Commission to assess civil penalties of up to five hundred dollars for the first day of a violation and up to one hundred dollars per day for each additional day of a continuing violation.²¹² Penalties may be assessed for a violation of the NMA, the regulations thereunder, an order issued under the NMA, or a nutrient management plan approved under the NMA.²¹³ In comparison with the penalties that may be imposed under the CSL and the SWMA, the penalty amounts authorized by the NMA are relatively low.²¹⁴

207. *Id.*

208. *Id.*

209. *See* 25 Pa. Code § 83.372 (2001).

210. *Id.*

211. 3 P.S. § 1711 (2001).

212. 3 P.S. § 1712(a) (2001).

213. *Id.*

214. The SWMA authorizes the imposition of civil penalties in amounts of up to \$25,000 per day per violation. 35 P.S. § 6018.605 (2001). The CSL authorizes the imposition of civil penalties in amounts of up to \$10,000 per day per violation. 35 P.S. § 691.605 (2001). Criminal penalties under the SWMA and CSL may be imposed in amounts considerably higher than civil penalties. *See* 35 P.S. §§ 6018.606 and 691.602

If pollution is resulting or is threatened by activities that are in accordance with an approved nutrient management plan, the owner or operator of the agricultural operation is exempt from civil penalties under the NMA.²¹⁵ In addition, Section 13 of the NMA provides as follows:

If a person is fully and properly implementing a nutrient management plan approved by the local conservation district or the commission and maintained under this act for an agricultural operation, the implementation shall be given appropriate consideration as a mitigating factor in any civil action for penalties or damages alleged to have been caused by the management or utilization of nutrients pursuant to the implementation.²¹⁶

The foregoing provisions provide certain “safe harbors” or quasi-safe harbors against the imposition of civil penalties and damages for those that develop and implement approved nutrient management plans.²¹⁷ As such, these provisions afford agricultural operations certain key benefits not available in the absence of approved nutrient management plans.

In addition to civil penalties, the NMA provides that violations of the NMA, the regulations thereunder, an order issued under the NMA, or a nutrient management plan approved under the NMA may be abatable in the manner provided by law or equity for the abatement of public nuisances.²¹⁸ The NMA also authorizes suits to restrain or prevent such violations.²¹⁹ These suits may be brought in either the Pennsylvania Commonwealth Court or the local courts of common pleas. Along with the Commission, the Pennsylvania Attorney General, the district attorney of any county, the solicitor of any affected municipality, and the solicitor of any conservation district may initiate such suits.²²⁰ By contrast, the NMA does not include a citizen suit provision.

The Commission or any conservation district delegated enforcement authority may issue such orders as are necessary to aid in the enforcement of the provisions of the NMA.²²¹ They are generally self-implementing (they take effect upon issuance). Such orders may

(2001).

215. 3 P.S. § 1712(a) (2001).

216. 3 P.S. § 1713 (2001).

217. *See id.*

218. 3 P.S. § 1712(c) (2001).

219. *Id.*

220. *Id.*

221. 3 P.S. § 1714(c) (2001).

be appealed to the Pennsylvania Environmental Hearing Board.²²² An appeal does not act to stay the effect of the order unless the Environmental Hearing Board separately issues a supersedeas.²²³

Agents of the Commission and conservation districts are vested with authority to enter, without a search warrant, any agricultural operation at reasonable times to conduct such investigations and to take such actions as are necessary for enforcement purposes.²²⁴

5. Preemption of Local Requirements

Section 17 of the NMA provides as follows:

This act and its provisions are of Statewide concern and occupy the whole field of regulation regarding nutrient management to the exclusion of all local regulations. Upon adoption of the regulations authorized by section 4, no ordinance or regulation of any political subdivision or home rule municipality may prohibit or in any way regulate practices related to the storage, handling or land application of animal manure or nutrients or to the construction, location or operation of facilities used for storage of animal manure or nutrients or practices otherwise regulated by this act if the municipal ordinance or regulation is in conflict with this act and the regulations promulgated thereunder. Nothing in this act shall prevent a political subdivision or home rule municipality from adopting and enforcing ordinances or regulations which are consistent with and no more stringent than the requirements of this act and the regulations promulgated under this act, provided, however, that no penalty shall be assessed under any such local ordinance or regulation for any violation for which a penalty has been assessed under this act.²²⁵

The preemption provisions of the NMA reflect the tension between local regulation of CAOs and the need for uniform standards relating to nutrient management across the state. Because local groups and municipal officials in certain portions of Pennsylvania have strongly opposed CAOs, the preemption provisions rest on a compromise between competing interests. In exchange for limiting the ability of municipalities to control CAOs at a local level, CAOs became subject to a formal regulatory framework at the state level.

The preemption provisions of the NMA remain largely untested. While it is clear that the NMA contemplates that state standards relating

222. *Id.*

223. *Id.*

224. 3 P.S. § 1714(a) (2001).

225. 3 P.S. § 1717 (2001).

to nutrient management are to control, it is much less clear how far municipalities can go in imposing requirements on CAOs. For example, municipalities can certainly adopt ordinances imposing the same substantive requirements as are found under the NMA. Nothing would appear to preclude municipalities from then adopting much more powerful enforcement tools such as higher civil penalty amounts than set forth in the NMA. Likewise, municipalities may retain authority to impose traditionally local requirements such as set-back restrictions and building permit limitations.

Two cases, both decided by Courts of Common Pleas in Pennsylvania, have addressed the preemption provisions of the NMA. In *McClellan v. Granville Township Board of Supervisors*, the Court of Common Pleas of Bradford County found that a municipal ordinance imposing restrictions on concentrated animal operations and related manure storage facilities was preempted by the NMA because the requirements of the municipal ordinance specifically applied to operations subject to the NMA and the requirements of the municipal ordinance were in actual conflict with the provisions of the NMA.²²⁶ The court rejected the argument that the municipal ordinance was justified under the Pennsylvania Municipal Planning Code²²⁷ noting that the Township had not adopted zoning ordinances, land development ordinances, or a comprehensive plan.²²⁸ The court characterized the ordinance at issue as an impermissible attempt to regulate one type of land use without first completing the necessary steps in the zoning process.²²⁹ The court noted that while it was declaring the ordinance to be invalid, nothing in its decision should be construed to prohibit the Township from properly adopting comprehensive plans, zoning and land development requirements applicable to land uses within the Township, including concentrated animal operations.²³⁰

In *Adam v. Zoning Hearing Board of the Township of Perry*, the Court of Common Pleas of Berks County addressed the issue of whether the Perry Township Zoning Hearing Board had abused its discretion in granting a special exception allowing the construction and operation of a swine breeding operation in the Township.²³¹ Those

226. *McClellan v. Granville Township Board of Supervisors*, Civil Action No. 99EQ000016 (Pa. Ct. of Common Pleas, Bradford Co. 2000).

227. Pennsylvania Municipal Planning Code, 53 P.S. §§ 10101-11202 (2001).

228. *McClellan*, Civil Action No. 99EQ000016.

229. *Id.*

230. *Id.*

231. *Adam v. Zoning Hearing Board of the Township of Perry*, Civil Action No. 99-4176 (Pa. Ct. of Common Pleas, Berks County 2000).

appealing the decision by the Zoning Hearing Board contended, among other things, that the Zoning Hearing Board had abused its discretion by granting the special exception in the face of information that the applicant did not intend to remove its manure daily as required under the provisions of a local ordinance.²³² The court concluded that under the terms of the NMA, the Pennsylvania legislature had not intended to occupy the field of nutrient management to the exclusion of all local regulation of nutrient management.²³³ Instead, the court decided that local regulation of nutrient management is permissible where local requirements are not in conflict with the NMA or where the practices at issue are not regulated under the NMA.²³⁴ The court evaluated the specific swine breeding operation at issue and concluded that it was a CAO thereby rendering its manure disposal practices subject to the requirements of the NMA.²³⁵ Because the NMA does not mandate daily disposal of manure, the court concluded that the requirements in the local ordinance to the contrary were preempted by the NMA.²³⁶

In the ultimate analysis, the line of demarcation defining the zone of permissible local regulation of CAOs is likely to be determined through a case-by-case analysis of local requirements that are challenged under the preemption provisions of the NMA. Case law interpreting preemption provisions in other environmental statutes is likely to provide a point of departure for such a case-by-case analysis.

C. Pennsylvania's Strategy for Implementing the Requirements for CAFOs under the Clean Water Act

DEP has been authorized by EPA to administer the NPDES permit program in Pennsylvania including the federal requirements relating to CAFOs. In February 1999, DEP issued a document entitled "Final Strategy for Meeting Federal Requirements for Controlling the Water Quality Impacts of Concentrated Animal Feeding Operations" (hereinafter the "Final Strategy").²³⁷ This document describes the manner in which DEP is applying NPDES permitting requirements for CAFOs arising under the Clean Water Act. Rather than using the

232. *Id.*

233. *Id.*

234. *Id.*

235. *Adam*, Civil Action No. 99-4176.

236. *Id.*

237. Department of Environmental Protection, *Final Strategy for Meeting Federal Requirements for Controlling the Water Quality Impacts of Concentrated Animal Feeding Operations* (Feb. 1999), available at http://www.dep.state.pa.us/dep/deputate/watermgmt/wqp/Forms/CAFO_Stratg.htm.

federal requirements themselves, DEP instead relied on state authority under the CSL and NMA to craft a set of permitting requirements to serve in lieu of the federal requirements.²³⁸ In addition, DEP utilized the terminology and threshold standards under the NMA rather the Clean Water Act (e.g., CAOs versus CAFOs).²³⁹ The provisions of the Final Strategy were implemented in regulations that became effective on November 18, 2000.²⁴⁰

As set forth in the Final Strategy, any farming operation with a direct discharge to surface waters is required to obtain an individual NPDES permit.²⁴¹ Individual NPDES permits are also required for any feed lot or manure storage facility from which there is a direct discharge to a surface water during a storm that is less intense than a 25-year, 24-hour rainfall event, regardless of the number of animals that are being maintained.²⁴² Indeed, the definition of a concentrated animal feeding operation for purposes of Pennsylvania's NPDES program includes any agricultural operation with a discharge to surface waters during a storm event of less than a 25-year, 24-hour storm.²⁴³

In addition, the Final Strategy addresses NPDES permitting requirements that may apply based on the number of animals that are maintained at a facility. For example, any new or expanded farming operation that has more than one thousand AEUs (rather than one thousand animal units as provided under EPA's regulations) is required to obtain an individual NPDES permit.²⁴⁴ For any CAO (concentrated animal operation) as defined under the NMA (an operation with more than two AEUs per acre) that is located in a special protection watershed, an individual NPDES permit is required if the COA has more than three hundred AEUs.²⁴⁵ As such, this requirement is based on both the overall number of animals at a facility (more than three hundred AEUs) and the density of those animals in relation to available

238. *Id.*

239. *Id.*

240. See 30 Pa. Bull. 6059 (Nov. 18, 2000).

241. Department of Environmental Protection, *Final Strategy for Meeting Federal Requirements for Controlling the Water Quality Impacts of Concentrated Animal Feeding Operations* (Feb. 1999), available at http://www.dep.state.pa.us/dep/deputate/watermgt/wqp/Forms/CAFO_Stratg.htm.

242. *Id.*

243. See 25 Pa. Code § 92.1 (2001).

244. Department of Environmental Protection, *Final Strategy for Meeting Federal Requirements for Controlling the Water Quality Impacts of Concentrated Animal Feeding Operations* (Feb. 1999), available at http://www.dep.state.pa.us/dep/deputate/watermgt/wqp/Forms/CAFO_Stratg.htm.

245. *Id.*

acreage (more than two AEUs per acre).²⁴⁶ These requirements are reflected in the regulations implementing Pennsylvania's NPDES permit program which define a concentrated animal feeding operation for purposes of Pennsylvania's NPDES permit program to include a CAO with greater than three hundred AEUs and any agricultural operation with greater than one thousand AEUs.²⁴⁷

Under the regulations implementing Pennsylvania's NPDES permit program, facilities that qualify as CAFOs must apply for NPDES permits in accordance with the following schedule:

- For CAFOs with greater than 1,000 AEUs in existence on November 18, 2000—by May 18, 2001;
- For any other CAFOs in existence on November 18, 2000—by February 28, 2002; and
- For CAFOs that begin operations after November 18, 2000—prior to commencing operations.²⁴⁸

In addition, the regulations implementing Pennsylvania's NPDES permit program mandate that NPDES permits for CAFOs require the following:

- A nutrient management plan meeting the requirements of the NMA;
- An erosion and sedimentation control plan meeting the requirements of 25 Pa. Code Chapter 102; and
- For earth disturbances of 5 acres or more, an NPDES permit for stormwater discharges associated with construction activities meeting the requirements of 25 Pa. Code Chapter 102.²⁴⁹

NPDES permits for CAFOs having greater than one thousand AEUs must also include conditions requiring that the permittee prepare a water quality management permit under 25 Pa. Code § 91.36(a), a preparedness, prevention and contingency plan for chemicals related to

246. *Id.*

247. 25 Pa. Code § 92.1 (2001).

248. 25 Pa. Code § 92.5a(a) (2001).

249. 25 Pa. Code § 92.5a(b) (2001).

the operation, written agreements with importers or brokers related to the land application of manure, and nutrient balance sheets for all exported manure.²⁵⁰

The Final Strategy describes those facilities that are subject to NPDES permitting requirements but that can potentially satisfy such requirements using a general permit rather than an individual permit.²⁵¹

To streamline the permitting process, DEP has developed a general permit entitled "CAFO NPDES General Permit" (General Permit PAG-12). Three classes of facilities otherwise subject to NPDES permitting requirements potentially qualify to operate under General Permit PAG-12:

- Existing farming operations that have more than 1,000 AEUs;
- Existing operations that qualify as CAOs and that have more than 300 AEUs (provided that they are not located in special protection watersheds); and
- New or expanded operations that qualify as CAOs and that have more than 300 but not more 1,000 AEUs (provided that they are not located in special protection watersheds).²⁵²

DEP may also require, on a case-by-case basis, that facilities potentially qualifying to operate under General Permit PAG-12 obtain individual NPDES permits. The Final Strategy specifies that to qualify as an existing facility, the facility must have been in operation on or before January 16, 1998 (the date on which DEP issued its interim CAFO permitting strategy).²⁵³

250. 25 Pa. Code § 92.5a(c) (2001).

251. A general permit is designed to cover a class of similarly situated facilities that are generally perceived to pose reduced risks of environmental impact. Unlike an individual permit that is tailored to a particular facility, a general permit contains a set of generic conditions and requirements that must be satisfied. The permitting process is simplified because instead of filing an individual permit application, a person or entity seeking to operate under a general permit typically is required to file a Notice of Intent Form ("NOI") that provides basic information relating to the operation and a commitment to comply with the terms of the general permit.

252. See Department of Environmental Protection, *Final Strategy for Meeting Federal Requirements for Controlling the Water Quality Impacts of Concentrated Animal Feeding Operations* (Feb. 1999), available at http://www.dep.state.pa.us/dep/deputate/watermgt/wqp/Forms/CAFO_Stratg.htm.

253. *Id.*

V. Conclusions

Regulation of nutrient management is here to stay. The evolution of agricultural practices and the environmental degradation that has been linked with the improper management of manure ensure such a result. As concepts and practices of mass production that have been used successfully with many types of industrial operations continue to move into the agricultural arena, environmental requirements applicable to agricultural operations will change significantly, particularly with respect to the manner in which manure is managed. With the growing concentration and segmentation of the agricultural production process, management of manure will become increasingly a waste disposal issue. The implications that flow from this dynamic range from the practical to the philosophical.

Many of the exclusions from environmental regulation that agricultural operations traditionally have enjoyed are rooted in notions of community trust and the belief that those in the farming community will serve as stewards of the environment because of enlightened self-interest. Historically, families often tended the same farms from generation to generation, relying on the land to produce the crops necessary to sustain animal production at such farms. Manure was a resource to be used to promote crop production in ways that would enable the land to remain productive on a long-term basis. Given such forces at work, little regulation of the use of manure was necessary.

With the evolution in agriculture that is taking place, the facilities where animals are produced and manure is generated may have no connection whatsoever with the farms where the feed necessary to sustain the animals is grown. In simple terms, an operator of an animal production facility with a manure storage lagoon filled to capacity is confronting a pressing waste disposal issue. This is little different than a manufacturing facility that has exhausted its waste storage capacity and must find a mechanism to dispose of its wastes to remain in operation.

The nutrient management program provides a structure for handling manure in circumstances where traditional incentives to promote the sound management of manure may be missing. The legal framework in Pennsylvania that is now in place will need to continue to evolve to keep pace with the changes and challenges in the agricultural field. For example, the nutrient management program will need to be updated to reflect continuing research regarding the ability of plants to assimilate nutrients and soils to effectively hold excess nutrients that may be applied. The presence of various constituents in manure that may pose threats to human health and the environment will also need to

be addressed. Moreover, the management of manure that is transferred to third parties, either through brokers or directly, may need to be regulated on a more comprehensive basis. At the same time, as the transition to increased regulation occurs in the agricultural arena, both regulators and regulated entities should be cognizant of the lessons learned over the past thirty years in the context of developing and applying environmental requirements in the industrial arena.

The nutrient management program also will need to address in a constructive fashion issues that currently are causing massive rifts within certain communities in Pennsylvania and elsewhere. Some of these issues, such as odor, water quality, and water usage, raise important environmental and public health concerns along with quality of life considerations. Other issues such as the continuing economic viability of smaller, non-concentrated farms in the face of concentrated animal operations may be well beyond the realm of the nutrient management program to address. Finally, the nutrient management program must help ensure that the bonds between farmers and their neighbors that have been forged over two centuries in Pennsylvania and that are critical to the continuing viability of many rural communities are not permanently eroded.