Meeting environmental requirements for the land application of manure

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ABSTRACT: In an effort to save regulatory resources, the US Environmental Protection Agency and individual states have interpreted the Clean Water Act in a manner that authorizes discharges from concentrated animal feeding operations without the review of nutrient management plans. Environmental groups have objected to the abbreviated regulatory procedures, and courts have ruled that permitting agencies must review substantive documentation of effluent limitations contained in nutrient management plans. Proposed new federal regulations prescribing the requirement of a meaningful review of appropriate documentation by the permitting agency respond to the judicial mandates. To facilitate regulatory approval, regulators might use a state certification program to achieve the obligatory meaningful review. Independent certifiers would ensure that an operation’s land application of manure meets federal water quality requirements.

Key words: effluent limitations, land application, manure, regulation, water quality

INTRODUCTION

A legal decision in Michigan has highlighted difficulties faced by regulators in devising a workable set of rules to oversee the land application of manure from concentrated animal feeding operations (CAFO). Sixteen years after the US Environmental Protection Agency (EPA) agreed to propose new effluent limitations for CAFO (NRDC v. Reilly, 1991), environmental groups are still petitioning for federal CAFO regulations that conform to the dictates of the US Clean Water Act. Under the Act’s provisions for National Pollutant Discharge Elimination System (NPDES) permits, owners and operators of “Large CAFO” must have a permit to apply manure, litter, and wastewater to lands (US Code of Federal Regulations, 2007, §§ 122.23 and 412.4). In Sierra Club Mackinac Chapter v. Department of Environmental Quality (2008), a Michigan court concluded that the CAFO permitting program of the state did not satisfy the requirements of the Clean Water Act because dischargers were using general permits that did not include the review of required minimum effluent limitations. The conclusion of the Sierra Club court that the general permitting provisions of the Michigan regulations failed to meet federal requirements suggests that other state permitting regulations may suffer a similar fate. For animal producers and regulating agencies, recent judicial decisions call for the expenditure of more resources to meet ambiguous federal requirements. This article distinguishes congressionally mandated statutory requirements from agency regulations to propose an independent third party to certify nutrient management plans containing effluent limitations to meet the legal prerequisites for permitting discharges.

FEDERAL EFFLUENT LIMITATIONS

The US federal law seeks “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (US Code, 2000, § 1251). Under the Clean Water Act, unpermitted discharges of pollutants from point sources into navigable waters are not allowed. However, the Act recognizes that a complete ban on water pollutants is not feasible, and NPDES permits allow point sources to discharge some pollutants. The definition of point sources in the Act includes CAFO, so these operations need a permit before making a discharge into navigable waters. Federal regulations define CAFO as animal feeding operations that have additional characteristics concerning numbers of animals at a single facility and discharges of pollutants (US Code of Federal Regulations, 2007, § 122.23).
The federal CAFO permitting regulations developed by the EPA apply to both physical areas of production and to discharges occurring at land application areas. Production areas include animal confinement areas, manure storage areas, raw material storage areas, and waste containment areas. Lands receiving manure from CAFO are regulated because the manure applications involve the disposal of material from a point source. The regulations view land application favorably as a sustainable agronomic practice with value in providing nutrients for crop production and contributing to soil fertility (US EPA, 2003a).

A land application area is defined as land under the control of an animal feeding operation owner or operator to which manure from the production area is or may be applied. Because manure application at agronomic rates has a minimal potential to adversely affect water quality, it is allowed if the owner or operator meets the Clean Water Act’s requirements for an NPDES permit (US EPA, 2003a). This means that the regulation of the land application of manure differentiates between allowed applications of manure as a fertilizer and inappropriate applications of manure. Manure needs to be “applied in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients” (US Code of Federal Regulations, 2007, § 122.23). By delineating how much manure can be applied, a nutrient management plan prevents unacceptable disposal practices that would impair water quality.

Most CAFO secure permits from authorized state permitting agencies pursuant to a delegation of authority from the US EPA (2003b). State agencies usually adopt rules for discharge permits containing provisions that are similar to those in the federal regulations and issue state NPDES permits. The Clean Water Act commands that state discharge standards and limitations cannot be less stringent than those required by federal law (US Code, 2000, §§ 1311, 1342). This means that the NPDES program of a state cannot issue permits in situations in which minimum federal effluent limitations have not been met.

Although the Clean Water Act seeks to improve water quality, it declines to delineate specifics of what is required. The Act requires that permits must contain conditions that are adequate to “assure compliance,” but no definitive conditions are enumerated (US Code, 2000, § 1342). The Act requires that permits and permit applications be available to the public. Federal regulations adopted in accordance with statutory authorization require best management practices and procedures to implement applicable effluent limitations and standards. For the land application of manure by Large CAFO, a nutrient management plan that minimizes nutrient movement to surface waters is required (US Code of Federal Regulations, 2007, §§ 122.42, 412.4). However, there is no statutory command setting forth provisions that the permitting agency itself meaningfully review plans.

Under the Clean Water Act, effluent limitations must be applied to all point sources of discharge of pollutants. The Act defines effluent limitation as “any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters” (US Code, 2000, § 1362). Effluent limitations must be based on the application of the best practicable control technology currently available (US Code, 2000, § 1311). Technology-based and water quality-based effluent limitations are imposed through NPDES permits to control the discharge of pollutants.

The federal regulations for CAFO enunciate nonnumerical effluent limitations in the form of a nutrient management plan containing best management practices (US Code of Federal Regulations, 2007, §§ 122.23, 412.4). For the land application of manure, the nutrient management plan needs to incorporate application rates for manure applied to land under the ownership or operational control of the CAFO to “minimize phosphorus and nitrogen transport from the field to surface waters in compliance with the technical standards for nutrient management” (US Code of Federal Regulations, 2007, § 412.4). The technical standards must include “a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to surface waters, and address the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters” (US Code of Federal Regulations, 2007, § 412.4). These narrative effluent limitations in the Federal Code of Regulations ensure that CAFO do not impair water quality in violation of the Clean Water Act.

STATE GENERAL PERMITS

Federal regulations allow regulators to use “general permits” for large numbers of sources discharging into different bodies of water. A general permitting option allows coverage of multiple facilities under a blanket permit wherein industries are categorized according to similarities in size and the nature of their storm water runoff potential (US Code of Federal Regulations, 2007, § 122.28). General permits have been authorized for CAFO, municipal storm waters, and water treatment facilities (US Code of Federal Regulations, 2007, §§ 122.23, 122.26, 122.33). Once adopted, applicants under a general permit simply submit a “notice of intent” to the permitting authority.

A notice of intent is a formal acceptance of permitting terms elaborated in the approved general permit so that dischargers can receive authority to discharge. In allowing discharges, are notices of intent the equivalent of a permit, or are they something different? A federal circuit court found in Environmental Defense Center v. EPA (2003) that notices of intent were functional equivalents of NPDES permits. Another circuit court
concluded notices of intent were not permits because the general permit was the document that received regulatory approval (Texas Independent Producers and Royalty Owners Association v. EPA, 2005).

The EPA felt that individual permits for large numbers of similarly situated CAFO facilities would constitute an overwhelming administrative burden (US EPA, 1990; Seidenberg, 2006). General permits involving notices of intent replace individualized permits to drastically reduce the administrative burden for permitting agencies. Under the generic terms of a general permit, permitting agencies authorize CAFO discharges without additional government review or public participation (Gaba, 2007). In this manner, the use of general permits with notices of intent circumvents site-specific nutrient management requirements that are part of individual NPDES permits.

In the challenge to the Michigan permitting provisions in the Sierra Club lawsuit, the petitioner alleged that Michigan’s general permit for CAFO failed to impose effluent limitations similar to those required by federal regulations. The CAFO owners and operators in Michigan were able to apply for a “certificate of coverage” under a general permit, with a certificate of coverage simply being another name for a notice of intent (Michigan Administrative Code, 2005). Michigan adopted its general permit for CAFO after opportunities for public review and comment. Under this permit, the discharger agrees to comply with its provisions, Michigan’s Department of Environmental Quality approves the certificate, and the discharger has authority for discharging pollutants pursuant to the terms of the general permit.

The provisions of Michigan’s general permit for CAFO prohibited discharges that contribute to a violation of state water quality standards, delineated requirements for the land application of CAFO waste, and identified requirements for implementation of best management practices by the discharger (Michigan Department of Environmental Quality, 2005). Dischargers applying manure to land were required to conduct field assessments for nutrient utilization, sampling of manure, and sampling of soils. Dischargers agreed to submit a comprehensive nutrient management plan to the permitting agency and comply with nutrient application limitations (Michigan Department of Environmental Quality, 2007). Dischargers were able to qualify under the general permit before submission of a comprehensive nutrient management plan without review of nutrient management particulars.

The Sierra Club case follows 2 earlier legal challenges to NPDES permitting requirements. In Environmental Defense Center, a court evaluated a permitting procedure for storm water runoff. The court concluded that permitting agencies need to engage in a meaningful review of water management programs to ascertain compliance with discharge limitations. Following the reasoning of this court, Waterkeeper Alliance, Inc. v. EPA (2005) found that the 2003 federal CAFO regulations violated the Clean Water Act by failing to require that the terms of the nutrient management plans be included in NPDES permits. A permitting scheme that declined to require permitting authorities to review nutrient management plans could not ascertain whether the plans would meet federal water quality standards. The federal CAFO regulation was returned to the EPA. Sierra Club extends these earlier directives to require producers filing notices of intent under a general permit to include terms regarding their nutrient management plans. Permitting agencies that are currently not reviewing nutrient management plans that accompany notices of intent need to allocate additional time to review the necessary provisions.

Because the effluent limitations in a CAFO are established by best management practices in a nutrient management plan, Michigan’s certificates of coverage were being issued without required effluent limitations. The Sierra Club court felt that the federal regulations intended that there be oversight of effluent limitations. The court followed the earlier Waterkeeper decision in concluding that the agency issuing authorization for a discharge needed to conduct a meaningful review of effluent limitations. Michigan’s CAFO program using a general permit did not delineate any oversight or approval of effluent limitations by the permitting agency, so did not meet the requirements of the Clean Water Act.

But what is really required by the Clean Water Act? Given regulators’ limited resources, how can they end this litigation treadmill? Although safeguarding water quality is important and is mandated by the Act, the analytic interpretations by the Sierra Club and Waterkeeper courts seem to impose more administrative oversight than is required. The courts illuminate the need for a meaningful review of nutrient management plans by permitting agencies. However, this interpretation ignores congressional policy goals, efforts of the USDA’s Natural Resources Conservation Service (USDA, 2008a), public services available from state extension services, and the use of private consulting experts. The Clean Water Act does not need to be interpreted so strictly. Congress also sought to preserve the rights of states to reduce pollution, minimize paperwork, and make “the best use of available manpower and funds” (US Code, 2000, § 1251). Regulators might safeguard scarce public resources by relying on independent certifiers to achieve the obligatory meaningful review.

DISCHARGE APPROVAL REQUIREMENTS

The courts, the EPA, state permitting agencies, and potential dischargers have had difficulties in discerning the requirements of the federal NPDES program (Becker, 2006; Centner, 2006a). The Sierra Club and Waterkeeper courts correctly identified deficiencies in permitting programs by which nutrient management
plans were not submitted to permitting agencies before approval of a permit, including discharge approval via a notice of intent or certificate of coverage. Simultaneously, it is not clear that the courts meaningfully differentiated between requirements mandated by the Clean Water Act, as opposed to augmenting administrative provisions that implement the Act.

The distinction is important. Discharges from CAFO must comply with the congressionally adopted provisions of the Clean Water Act. The EPA and state permitting agencies administer the Act and develop necessary and reasonable regulations. Sometimes, the regulations fall short. At other times, the regulations go too far. Courts have been presented both of these situations. The absence of submission and review of nutrient management provisions meant that CAFO regulations did not meet the requirements of the Clean Water Act. But in addressing existing shortcomings, regulators do not need to require more than is necessary to comply with the statutory directives. Suggested regulatory oversight of the use of general permits and a review of plans appear to establish obligations beyond those demanded by the basic requirements of the Act.

Submission of Plans

The claim by the EPA (Waterkeeper Alliance, Inc. v. EPA, 2005) and the Michigan Department of Environmental Quality (Sierra Club Mackinac Chapter v. Department of Environmental Quality, 2008) that the submission of a nutrient management plan by a discharger is not necessary obfuscates the issue. The argument postulates that a plan is simply a “planning tool” (Waterkeeper Alliance, Inc. v. EPA, 2005) or a “management plan” (Sierra Club Mackinac Chapter v. Department of Environmental Quality, 2008) that assists a CAFO in complying with effluent limitations. With this distinction, these permitting agencies claimed that submission of a nutrient management plan was not required to meet the requirements of gaining approval to discharge. Regulators and dischargers are correct in noting that the Clean Water Act does not specifically require submission of a plan. Rather, the term “nutrient management plan” is a creation of the CAFO plan of the EPA regulations to embody the documentation necessary for establishing effluent limitations to ensure compliance with the Clean Water Act. Thus, the claim that a nutrient management plan does not have to be submitted is a linguistic argument that is not very helpful. The Act requires some type of substantive documentation of effluent limitations, and a permittee provides this information through a nutrient management plan.

The issue presented to the Waterkeeper and Sierra Club courts was whether regulatory programs authorizing discharges without submission of effluent limitations were possible given the dictates of the Clean Water Act. The federal regulations considered in Waterkeeper allowed permits to be issued without the submission of nutrient management plans. The Michigan procedure allowed the permitting agency to issue a certificate of coverage to a discharger without submission of any documentation of the site-specific effluent limitations (Sierra Club). Authorizing discharges without documentation of site-specific effluent limitations for the discharger does not comply with the Clean Water Act. The absence of documentation of the nutrient management provisions by the CAFO means there is no information on allowable pollutant levels. Permitting agencies are unable to authorize discharges without a description of the nutrients required for the production of crops. The omission of effluent limitations in a notice of intent (certificate of coverage) means there is no documentation for establishing allowable discharges. The NPDES permitting system of the Clean Water Act does not allow undocumented discharges.

The proposed revision to the federal CAFO regulations requires submission and review of a nutrient management plan (US EPA, 2006). Nutrient management plans are detailed documents with information beyond what is required for compliance with the Clean Water Act. In 2008, the EPA proposed to limit these plans to include 9 minimum elements delineated in the CAFO regulations (US EPA, 2008). This proposal supports the industry claim that documentation of effluent limitations does not require submission of an entire nutrient management plan by the CAFO. The Clean Water Act simply requires substantive documentation of appropriate effluent limitations to minimize pollution.

Providing for Public Participation

The Clean Water Act unequivocally declares that “public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this Act shall be provided for, encouraged, and assisted by the Administrator and the States” (US Code, 2000, § 1251). Because CAFO permits set effluent limitations, some type of public opportunity to be heard is required before the issuance of a permit. The failure of the 2003 CAFO regulations to require submission of a nutrient management plan was found to offend the public participation requirements of the Act (Waterkeeper Alliance, Inc. v. EPA, 2005). Michigan’s general permit using certificates of coverage also failed to satisfy the public participation requirements of the Act (Sierra Club Mackinac Chapter v. Department of Environmental Quality, 2008).

Public participation does not require a hearing. Rather, public participation is being interpreted as requiring an opportunity for input on required elements of nutrient management plans that are submitted to the permitting agency. Therefore, to provide public input, the required 9 minimum elements of nutrient...
management plans must be available before issuance of a permit or a notice of intent.

**Meaningful Review Through a State Certification Program**

Another issue raised by the courts involves the requirement that agencies meaningfully review nutrient management plans. The Clean Water Act requires “conditions for such permits to assure compliance with the requirements” of the Act (US Code, 2000, § 1342). The Act also requires effluent limitations to “be applied to all point sources of discharge of pollutants” (US Code, 2000, § 1311). Pursuant to these statutory requirements, nutrient management plans with effluent limitations must be submitted and approved by the EPA or state permitting agency. Moreover, the submitted plans must have some indicia that they meet the requirements, nutrient management plans with effluent limitations as anticipated by the Act (Chittenden, 2003). Certification of nutrient management plans might be expected to lead to superior plans that could enable permitting agencies to approve submitted plans without further evaluation.

Although certification is used in some states, such as New York (New York Department of Environmental Conservation, 2004), states have not delegated meaningful review authority to these experts. However, given the legal interpretation that meaningful review of nutrient management plans is required, it may be feasible to adopt a state regulatory program involving certified specialists. States would provide for qualification of certifiers, a meaningful review of nutrient management information by certifiers, oversight of the certifiers (including a procedure for decertification), and the approval of plans appropriately certified. By requiring nutrient management plans to be prepared and meaningfully reviewed by independent certifiers, the permitting agency would have assurance that the land application of manure by the CAFO meets the requirements of the Clean Water Act. With independent certifiers, who would presumably have training and experience in agriculture, there is also greater potential that the site-specific nature of the nutrient management plans would remain intact. Simultaneously, there would not be delegation of permitting authority; the state permitting agency would issue NPDES permits.

**Preserving the Option of General Permits**

Regulators and CAFO have expressed strong support for retaining the option of using general permits with notices of intent for complying with the Clean Water Act. Although it has been argued that the adoption of the general permit provides the required opportunity for public input, this does not seem to satisfy the requirement of the Act. Unless a general permit somehow contains documentation concerning site-specific nutrient application rates, the public is not provided an opportunity for the sort of regulatory participation in the development, revision, and enforcement of effluent limitations as anticipated by the Act (Waterkeeper Alliance, Inc. v. EPA, 2005). In the absence of site-specific information, it is impossible to enumerate substantive documentation of appropriate effluent limitations to ensure appropriate agricultural utilization of the nutrients (US Code of Federal Regulations, 2007, § 122.23). Yet the elimination of general permits might
not be a positive development. Given the administrative resources required for issuance of individual permits, many permitting agencies would be better served by preserving the option to use a general permit. Can a general permit be structured to provide submission of sufficient information to delineate suitable effluent limitations and provide sufficient opportunity for public participation?

Drawing from current federal regulations, the EPA proposes that 9 elements need to be addressed in a nutrient management plan (US EPA, 2008). A plan must (to the extent applicable):

- “(i) Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities;
- “(ii) Ensure proper management of mortalities (i.e., dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities;
- “(iii) Ensure that clean water is diverted, as appropriate, from the production area;
- “(iv) Prevent direct contact of confined animals with waters of the United States;
- “(v) Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants;
- “(vi) Identify appropriate site-specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States;
- “(vii) Identify protocols for appropriate testing of manure, litter, process wastewater, and soil;
- “(viii) Establish protocols to land apply manure, litter, or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater; and
- “(ix) Identify specific records that will be maintained to document the implementation and management of the[se] minimum elements. . . .” (US Code of Federal Regulations, 2007, § 122.42).

The EPA suggests that under a general permit, these 9 elements would need to be incorporated into a notice of intent (US EPA, 2008). Although this preserves the use of general permits, the additional materials alter the timing and disclosure of submitted materials. The elements of a nutrient management plan will need to be submitted before approval of the notice of intent. This will need to be accompanied by an opportunity for public input (US EPA, 2006). Moreover, the elements will need to be meaningfully reviewed before issuance of a notice of intent. Upon issuance, the elements of the plan are incorporated into the general permit.

Thus, general permits may be used for CAFO, but will not offer as expedient a process as has existed in most states. Rather, a notice of intent will need to be accompanied by the 9 elements of the nutrient management plan delineated by the federal regulations. To address the administrative burden posed by the need to meaningfully review notices of intent containing 9 elements, the use of a certification program might be advantageous. In practice, states have generally adopted the position that if the elements of a nutrient management plan meet the criteria of the appropriate USDA Natural Resources Conservation Service Conservation Practice Standard, then the plan is acceptable. For example, mortality management is covered in Conservation Practice Standards 316 and 317, clean water diversion in 362 and 558, animal exclusion in 472, and several others in 590 and 633. These standards are tailored for each state or region of the state (USDA, 2008b). Therefore, determining the adequacy of a plan can be relatively objective. Given state budgeting limitations, independent certifiers may offer the best option for state permitting agencies to respond to the requirements of the Clean Water Act.

**Conclusions**

Regulatory authorities issuing permits and notices of intent to CAFO owners and operators pursuant to an NPDES program have been remiss in overseeing permit prerequisites. The conclusions of the *Waterkeeper* and *Sierra Club* courts highlight the shortcomings of regulators and some of the problems of meeting the dictates of the Clean Water Act. Sufficient documentation of the effluent limitations by the CAFO is required to be submitted to provide an opportunity for oversight. Effluent limitations established through 9 elements of the nutrient management plan of the CAFO provide the documentation on how the discharger is meeting the requirements of the Clean Water Act.

In responding to the orders of the *Waterkeeper* and *Sierra Club* courts and other potential litigation, most state regulators will need to spend more time and resources in reviewing nutrient management plans. Each permit and notice of intent must contain the enumerated 9 elements prescribed by the federal regulations so that potential discharges from the application of manure do not result in the unacceptable impairment of water. Moreover, the nutrient management provisions must be meaningfully reviewed. In the absence of a definitive statutory requirement, a state may enact a program whereby certified independent third parties perform the meaningful review, and the permitting agency itself approves the proposal. In this manner,
the permitting agency can make the best use of available workforce effort and funds, as enunciated by the Clean Water Act (US Code, 2000, §1251).

LITERATURE CITED

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