

Developing Permits: a Virginia Case Study for Confined Animal Feeding Operations

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AUTHOR'S NOTE

An earlier draft of this paper was reviewed by many of the participants in the general permit development process. I have tried to reflect their perspectives and roles accurately, but the interpretations of the sequence of events, the actions of various participants, and the value of the overall permit development process are mine.

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EXECUTIVE SUMMARY

A possible deterrent to expansion of the hog industry in Virginia has been the difficulty with obtaining permits for confined animal feeding operations. Some producers spent considerable amounts of money and time only to be denied the necessary permit. In 1993, the Department of Environmental Quality (DEQ) was reorganized to provide enhanced technical assistance, public service, and pollution prevention rather than the traditional regulatory control. In support of these objectives, they appointed two advisory groups to work with them to develop a new, more “user friendly” confined animal feeding permit that would still protect the environment. One group consisted of producers, industry representatives, and environmental organization representatives. The other group was comprised of researchers from Virginia Tech to provide technical assistance.

A great deal of time was spent on the part of all those involved to develop the final permit. The Virginia Farm Bureau Federation (Virginia Farm Bureau), at the beginning of the process, stated that if it were not satisfied with the outcome of the permit development, it would seek legislative relief. Because of laws and regulations existing at the time of the discussion and because the Virginia Farm Bureau felt that some of the proposed requirements were too restrictive, they lobbied for legislative changes which the General Assembly passed.

Without the time spent in discussions by the advisory groups prior to the legislative changes, the new law and regulations would, undoubtedly, have been very different. The cost in terms of time and travel for the advisory group members and DEQ was significant. However, DEQ, at least, felt that the result was worth the cost since it learned many lessons about permits and how they potentially affect an industry. The confined animal feeding permit was the first general Virginia Pollution Abatement (VPA) permit and has served as a model for five more general permits in other industries.

One conclusion that can be readily drawn from the process that DEQ went through in the development of the Confined Animal Feeding Operation permit is that working together in a form of “negotiated rule-making” benefits all the parties involved, but it is not without substantial cost.

INTRODUCTION

In April 1993, the newly organized Department of Environmental Quality (DEQ) began operations in Virginia. The objective of DEQ is to provide enhanced technical assistance, public service, and pollution prevention rather than the traditional regulatory control. The new approach will allow (1) one-stop permitting, (2) clear performance expectations and time tables for permits, (3) more comprehensive evaluation of economic consequences and environmental impacts of agency decisions, (4) additional opportunities for public involvement, and (5) other benefits without any increase in governmental costs (DEQ, 1992). The purpose of this report is to evaluate how well these objectives were fulfilled in the development of a new general permit for confined animal feeding operations (feeding operations). Particular emphasis will be placed on the involvement of the public in the permit development process. In reviewing the public involvement, attention will be given to the participants, the process, the issues and their resolutions, and the final results. Some lessons that may be instructive for future permit development processes and policies will be drawn.

HISTORY

To understand the need for a new general permit for feeding operations, some history is helpful. In 1986, Carroll's Foods of Virginia, Inc. started to develop large, confined hog operations in Virginia. Each farm contained 1,000 sows and produced approximately 20,000 market hogs per year. Carroll's Foods' expansion plan included building 75 of these farm units in Virginia.

In the 1980s, the State Water Control Board (Water Board) required each farm with more than 300 animal units (intensified) or more than 1,000 animal units (concentrated) to obtain a Virginia Pollution Abatement (VPA) permit.¹ The process for obtaining a permit took 12 to 18 months and involved considerable economic cost to the applicant. (Cost estimates by producers ranged from \$10,000 to \$40,000.) Each permit required a nutrient management plan; a signed local government ordinance form verifying that the operation met all local zoning ordinances; a public notice in a local newspaper; and a public hearing if the Water Board decided, based on responses to the public notice, that one was necessary. Once granted, a concentrated permit was valid for five years and the intensified permit for ten years. Many of these permits required monitoring wells around lagoons; extensive water, soil, and waste sampling and testing; an annual report of all the monitoring results; a detailed report of when, where, and how much waste was applied to each field and the production from each field; and grazing was restricted for 15 to 30 days after application of animal waste to fields. More details on the application process and reporting requirements can be found in Kenyon and Thornsby.

Carroll's Foods and a few other large producers became very frustrated with the permit process. Prior to 1993, they held several meetings with the Water Board in an attempt to streamline the permit process and to reduce the monitoring and reporting requirements which they deemed unnecessarily burdensome. Because of the permit process and compliance costs, Carroll's Foods stopped building hog farms in

¹ In addition to size, the farm had to confine the animals for 45 days or more on a bare lot and have a liquid waste storage and management system. See Kenyon for more information.

Virginia in 1990 and started building more farms just across the Virginia border in North Carolina. A June 1993 *Virginia Business* article entitled “Oink! Not North Carolina” reported that Carroll’s Foods had built 18 new farms in North Carolina because it was “[f]ed up with the long and costly process of obtaining environmental permits in Virginia. . . .” (pp. 55-56). Waste management permits were being obtained in four months in North Carolina and required much less monitoring and reporting. At least one other large Virginia producer moved to North Carolina to avoid Virginia’s costly permitting process and the five-year permit duration (Kenyon and Thornsby).

Starting in 1988, the Rural Economic Analysis Program (REAP) in the Department of Agricultural and Applied Economics at Virginia Tech became interested in why hog production was declining in Virginia but increasing in North Carolina. A 1990 survey of Virginia hog producers indicated the main reason that they were leaving the industry was poor economic returns. But the survey also revealed that many large operations were concerned about environmental issues, including the permitting process (Thornsby, Harper, and Kenyon). These results led to preliminary investigations into the difference between swine waste management requirements in Virginia and North Carolina. It became apparent that compliance and the process of getting a permit were much more costly and strict in Virginia than in North Carolina. DEQ, the Chesapeake Bay Foundation, and the Department of Conservation and Recreation, all concerned with water quality, kept asking what impact the rapidly expanding swine industry (annual growth rate has exceeded 25 percent per year since 1990) was having on water quality in North Carolina. They were concerned that if Virginia allowed permits with no provisions for water quality, then Virginia’s water quality would deteriorate.

During September 1992, REAP personnel were asked to make a presentation to the Virginia Agricultural Senate and Natural Resources Committee on the competitive position of Virginia agriculture. The time required to get a permit and the cost of compliance were mentioned as reasons for the decline in Virginia hog production versus expansion in North Carolina. Virginia’s regulatory policy in the area of animal waste, it was pointed out, was having a substantial negative impact on investment, jobs, and income from potential hog production in Virginia. The discussion, following the presentation, centered on whether the Water Board’s permit process and requirements were causing swine producers to quit production in Virginia. The session ended with a commitment to investigate this issue further.

Following the Senate Agriculture and Natural Resources Committee meeting, REAP personnel discussed, in more detail with the Water Board and producers, the problems inherent in obtaining an feeding operation permit. Detailed information on the process and compliance requirements for obtaining a swine waste management permit in North Carolina was obtained by REAP personnel. Simultaneously, the Water Board began pursuing the possibility of using a general permit as a way of addressing many of the issues surrounding the existing permitting system.

During the spring of 1993, DEQ appointed two advisory groups to help write a new general permit for feeding operations in Virginia. These groups were appointed as part of DEQ’s commitment to increase public involvement in the permit development process.

Individuals and agencies having an interest in animal waste management as it related to maintaining water quality in Virginia comprised the first advisory group. Members of this ad hoc advisory committee (Advisory Committee) were appointed by DEQ based on their knowledge of the issues involved. The committee included producers, government agency personnel, and representatives from agricultural commodity groups, the Virginia Agribusiness Council, the Virginia Farm Bureau Federation (Virginia Farm Bureau), and the Chesapeake Bay Foundation. The main function of the Advisory Committee was to

advise DEQ on issues associated with large animal feeding operations and to provide suggestions on how to improve the permitting process in a way that would satisfy the interests and concerns of all the participants.

DEQ appointed a second advisory group, the Animal Waste Task Force (Task Force). It was composed of faculty from the College of Agriculture and Life Sciences, Virginia Tech. The primary purpose of the Task Force was to provide scientific and technical information. A secondary responsibility of the Task Force was to keep agricultural industry groups informed about the permit development process and to provide educational material to the agricultural community once a new general permit was developed. The Task Force members were appointed by the college dean and included an agronomist, agricultural engineer, animal scientist, and agricultural economist. Given his long history of involvement in animal waste and water quality issues, the agricultural engineer was a member of both the Advisory Committee and the Task Force.

The remainder of this report will focus on how these two advisory groups were involved in developing the new permit. The discussion will concentrate on the participants, the issues, and the process of issue reconciliation. A chronological summary of events which led to the DEQ’s appointment of the advisory groups and their meetings and interactions, which subsequently resulted in the new general permit, is given in Table 1.

Table 1. VPA permit development process history.

5/92	Virginia Department of Agricultural and Consumer Services (VDACS) personnel meet with swine industry to discuss VPA permit issues.
6/92	VDACS personnel meet with Water Board to discuss swine industry concerns about permitting process. Possibility of General Permit discussed.
9/23/92	REAP personnel testify before Virginia Senate Agriculture and Natural Resources Committee.
11/92	Virginia Senate and Natural Resource Committee holds meeting at Virginia State University. Permitting issues are discussed.
11/25/92	REAP and VDACS meet with Water Board personnel to discuss permitting process issues.
1/93	REAP personnel wrote “Balancing Environmental Costs and Economic Costs: The VPA Permit Process for Concentrated Animal Feeding Operations.”
3/26/93	REAP personnel met with administrative assistants of Secretary of Natural Resources and Head of Water Board in Richmond to discuss permitting process and compliance.
4/93	Virginia Tech Animal Waste Task Force (Task Force) appointed as technical consultants to Water Board.
5/18/93	First meeting of DEQ ad hoc Advisory Committee on VPA permits.
6/1/93	Task Force met with executive secretaries of poultry, swine, beef, and dairy industry associations.
6/93	Task Force attended and spoke at DEQ public meetings on VPA permits in Harrisonburg, Norfolk, and Roanoke.
6/18/93	Task Force met with personnel from DEQ to discuss permit changes.
7/93	DEQ published first draft of new general permit for concentrated and intensified feeding operations.
7/30/93	Task Force met with Virginia Farm Bureau, VDACS, Virginia Agribusiness Council, and Virginia Pork Industry in Richmond to inform them of response to proposed permits.
8/93	Task Force prepared 15-page evaluation of original general permits.

9/18/93 DEQ Advisory Committee meet in Richmond to discuss permits.

Table 1. VPA permit development process history (continued).

10/18/93	Thirty-day grazing restriction reappears in third draft of permit. VDACS works with Virginia Department of Health, State Veterinarian, Task Force, and DEQ to resolve issue.
12/93	Virginia Farm Bureau introduced HB 222. Prepared REAP testimony for Senate Agriculture and Natural Resources Committee on Economic Impact Swine Production in Southside Virginia.
1/94	Task Force answered requests and questions by Chesapeake Bay Foundation, Division of Soil and Water Conservation, Virginia Farm Bureau, and DEQ during legislative session on HB 222.
1/94	Public hearings on proposed DEQ general permit for concentrated and intensified animal feeding operations held in Harrisonburg, Williamsburg, and Wytheville.
1/94 to 2/94	Personnel from DEQ, Chesapeake Bay Foundation, Department of Conservation and Recreation, VDACS, Virginia Farm Bureau, and interested commodity groups interacted to develop compromise bill.
3/7/94	HB 222 passed by General Assembly. Law became effective July 1, 1994.
4/94	DEQ revised proposed general permit to be in compliance with HB 222.
5/23/94	Water Board approved new General Permit to be effective July 13, 1994.
7/6/94	Virginia Department of Health requested 14-day grazing restriction and 5-mile buffer around drinking water reservoirs.
7/8/94	Chesapeake Bay Foundation requested opportunity to submit oral and written comments on new permit under provisions of Administrative Processes Act.
8/94	DEQ held public meetings and accepts written comments on general permit.
9/19/94	Water Board adopted new general permit for confined animal feeding operations to become effective November 16, 1994.
11/16/94	General permit for feeding operations became available.

PUBLIC INVOLVEMENT PROCESS

The DEQ selected the members of the Advisory Committee to represent all sides of the animal waste issue with respect to water quality. The groups represented are presented in Figure 1. Each group had at least one representative and several groups had two or more representatives. DEQ invited the Task Force to meet with the Advisory Committee so that everyone could hear and participate in all the discussions.

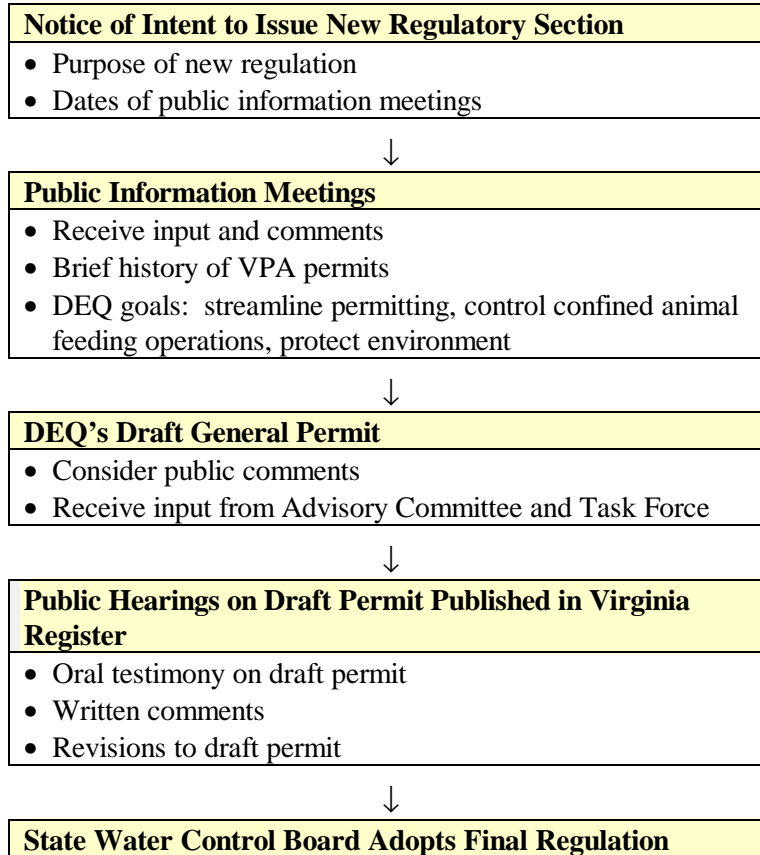
The first Advisory Committee meeting in May 1993 was attended by 21 individuals. The purpose of the meeting was to explain:

1. the permitting process and regulations for feeding operations;
2. DEQ's desire to improve the permit;
3. the function of the Advisory Committee;
4. the process that would be followed in developing the new permit; and

5. the expected time line of events.

DEQ expressed a desire to have a new general permit by August 1993. The Advisory Committee's role was to provide input to DEQ, to respond to draft permit proposals, and to keep Advisory Committee constituencies informed and involved in the permit development process. Under the Administrative Process Act, DEQ must follow prescribed steps in issuing a new regulation. These steps are presented in Table 2.

Table 2. Steps in issuing new regulations.



MAJOR ISSUES

The DEQ held informational meetings in Harrisonburg, Norfolk, and Roanoke during June. The Task Force informed all Virginia livestock extension agents of the public meetings and encouraged participation by producers. The Task Force also met jointly with the executive secretaries of the beef, swine, dairy, and poultry producers' associations to explain the purpose and intent of the new general permit. The executive secretaries were encouraged to inform their memberships and to request membership participation in the permit development process by attending public meetings, submitting written comments, and participating in the public hearings.

Figure 1. Virginia Pollution Abatement permit participants and major issues

<p>Virginia Department Health</p> <ul style="list-style-type: none"> • Application restrictions • Protect human health • Grazing restrictions • Restrict public access 	<p>Department Environmental Quality</p> <ul style="list-style-type: none"> • Protect ground and surface water • Compliance with federal and state laws • Easy to administer and enforce 	<p>Chesapeake Bay Foundation</p> <ul style="list-style-type: none"> • Keep 5 year permits • Local government ordinance form essential • Public hearings for citizen involvement • Need monitoring for enforcement • Require monitoring wells • All operations greater than 100 AU • Increase enforcement
<p>Virginia Agribusiness Council</p> <ul style="list-style-type: none"> • Cost of permitting and compliance • Monitoring requirements • Grazing restrictions 	<p>Animal Waste Task Force</p> <ul style="list-style-type: none"> • Consistent with good science • Cost of application and compliance • Duration of permit • Competitive position with respect to other states • Groundwater monitoring 	<p>Department Conservation and Recreation</p> <ul style="list-style-type: none"> • Site-specific NMP that is enforceable by DEQ • All operations greater than 300 AU¹ including poultry • Consistent Coastal Zone Management Law • Less soil and waste monitoring
<p>Soil Conservation Service</p> <ul style="list-style-type: none"> • Properly designed waste management system • Treat manure and commercial fertilizer same • Lagoon treatment facility 	<p>Virginia Farm Bureau Federation</p> <ul style="list-style-type: none"> • Groundwater monitoring • Grazing restriction • Operations manual • Reporting requirements • Duration of permit • Require nutrient management plan 	<p>Farmers - Swine and Poultry</p> <ul style="list-style-type: none"> • Simple and understandable • Maximum farm flexibility • Minimum monitoring and reporting • 10-to 15-year permit duration
	<p>Virginia Department Agriculture and Consumer Services</p> <ul style="list-style-type: none"> • Education of producers • Impact economic development • Monitoring costs • Grazing restrictions • Costs of compliance 	

¹ AU = animal units equivalent to 1,000 pound dairy cow.

At the June public information meetings with Task Force members present, producer participation was good in Harrisonburg, but only a few producers were present at the Norfolk and Roanoke meetings. Producers commented most frequently on the lengthy time necessary to obtain a permit and the cost of compliance. Bankers were concerned about the five-year permit length being shorter than the time period necessary to finance a new operation. One large producer discussed the difficulties of getting local authorities to sign the local governance ordinance form prior to DEQ approval. Several producers requested that any new regulations be as nonintrusive as possible in terms of impacting their daily operations. Several producers expressed a concern about the cost and effectiveness of monitoring wells around lagoons.

DEQ issued the first draft of the General Permit for Concentrated and Intensified Animal Feeding Operations in early July 1993. Each member of the Advisory Committee and Task Force was asked to make a written response to DEQ by July 31. The written responses of the various members identified the major issues and concerns of each group. The major issues summarized by each group in Figure 1 are the author's interpretation of the significant issues. Throughout the permit drafting process, each group raised concerns and issues and had suggestions for improving the permit. The 12 major issues that emerged are summarized in Table 3. There were many other issues not addressed by the Advisory Committee in their written comments. In light of future developments, it is important to note that the Virginia Farm Bureau indicated in their response to the first permit draft that they would appeal to the General Assembly if the final general permit were to be much stricter than North Carolina's permit.

Table 3. Permit issues.

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1. Streamline application process
 2. Cost of obtaining permit
 3. Monitoring wells around lagoons
 4. Groundwater, soil, and waste sampling and reporting
 5. Annual reporting to DEQ
 6. Five-year duration of permit
 7. Local government ordinance form
 8. Thirty-day grazing restriction
 9. Public hearings
 10. Size and type of operations
 11. Impact of regulation on economic development
 12. Buffer zones
-

First Draft of General Permit

All participants wanted the application process to be streamlined. Producers wanted clearer guidelines for application procedures, permit requirements, and expected time intervals for various steps. Producers, the Virginia Farm Bureau, the Virginia Agribusiness Council, the Virginia Department of Agriculture and Consumer Services (VDACS), and the Task Force were concerned about the cost of obtaining a permit. One farmer spent \$40,000 over a 12-month period attempting to obtain a permit and still did not have it.

Groundwater monitoring around lagoons was a contentious issue. All previously issued *individual* permits for concentrated and some intensified animal feeding operations required groundwater monitoring around lagoons. The Chesapeake Bay Foundation strongly endorsed monitoring for lagoon leaks. The producers argued that monitoring wells is very costly and puts them at a competitive cost disadvantage relative to North Carolina producers. The Task Force indicated that in regions with karst geology² monitoring wells would probably not be effective in determining lagoon leaks, but that certified liners (clay or synthetic) would be better protectors of the environment. VDACS and the Soil Conservation Service also had strong reservations about requiring *all* permits to include monitoring wells. DEQ was concerned about how to determine if the ground and surface water were being adequately protected in the absence of well monitoring.

The first draft of the general permit required detailed groundwater, soil, and waste monitoring by producers. Groundwater was to be sampled four times a year for eight different parameters. Soil was to be monitored twice a year for three parameters. Waste was to be monitored four times a year for ten different parameters. Each year producers would have to collect a total of ten samples, have them analyzed by a certified laboratory, and report the results to DEQ. The producers and agricultural organizations thought the monitoring requirements were excessive. The Chesapeake Bay Foundation and DEQ thought they were necessary to protect water quality. The Task Force indicated that the number of parameters being evaluated and the frequency of sample collection could be reduced substantially without impacting water quality.

In addition, the first draft also required annual reporting to DEQ of all monitoring results by date, crop, and volume of waste applied to *each field*; total animal waste applied; an annual waste balance sheet; a summary of agronomic practices including time of operations, crop yield, commercial fertilizer applications, and average animal units on-site during the year. All of the agriculturally related groups thought this magnitude of reporting excessive. DEQ, the Chesapeake Bay Foundation, and the Virginia Department of Health thought the information was necessary to monitor permit compliance.

The proposed new general permit would be good for five years. Producers, Virginia Farm Bureau, VDACS, Virginia Agribusiness Council, and the Task Force members argued for a 10- to 15-year permit duration to be consistent with the time required to finance new facilities. Producers did not want DEQ to issue a new permit with new requirements in the middle of their financing period. Several of the agricultural organizations and the Task Force argued that the five-year permit length put Virginia at a competitive cost disadvantage compared to other states, especially North Carolina where a permit was valid for the useful life of the facility. The Chesapeake Bay Foundation argued strongly for five-year permits to allow changing the permit regulations to reflect changing environmental standards. DEQ was careful to point out that the five-year duration was a state law and regulation requirement and could only be changed by changing the law and regulation requirement.

Each applicant would be required to obtain a signed local government ordinance form. The Chesapeake Bay Foundation wanted this provision to assure that citizens in local jurisdictions had an opportunity to comment on proposed operations. Producers and agricultural organizations were not opposed to the form per se, but were concerned that some counties were using the local government ordinance form as a mechanism to “zone out” large feeding operations. Some producers suggested having DEQ issue a permit under the condition that a local government ordinance form would be obtained before operation startup. They felt DEQ approval would assure local residents that the proposed operation would not impact

² Karst geology is primarily limestone, having many interconnected underground streams. If this underground water were found to be polluted, it would not be possible to identify the source of the pollution.

negatively on water quality. Local citizens at two public meetings were not convinced that DEQ would adequately monitor permit compliance.

The Virginia Department of Health requested a 30-day grazing restriction after all surface applications of animal waste. Since its regulatory responsibility is to protect human health, its specific concern was the possibility of round worms from the animal waste applied to fields entering animal tissue destined for human consumption. Producers and agricultural organizations thought this restriction was unnecessary, and there is no scientific evidence that round worms are a potential problem. The Task Force could find no evidence that grazing after surface application of animal waste is a threat to human health. The state veterinarian agreed with this position and wrote a letter to the Department of Health asking for a meeting to discuss this issue. The Department of Conservation and Recreation had been teaching farmers that swine waste applied to pasture in an intensive cattle grazing program is an effective way to manage waste and to increase farm profits. This system would not work with a 30-day grazing restriction.

Other issues were also raised in response to DEQ's first draft of the general permit. The Chesapeake Bay Foundation and the Department of Conservation and Recreation wanted the general permit to apply to poultry litter as well as liquid waste. The Soil Conservation Service and the Department of Conservation and Recreation wanted the new permit to be consistent with requirements in the Coastal Zone Management Act (which requires a permit for feeding operations of greater than 100 animal units) to make administration of the permits easier. Producers wanted the number and distance of buffer zones related to land application of waste reduced. VDACS, the Virginia Agribusiness Council, and the Task Force were concerned about the economic consequences of the permitting process and compliance costs on economic development in Virginia.

Second Draft of General Permit

In early August 1993, DEQ developed a second draft of the general permit based on responses to the first draft. It sent a copy to each Advisory Committee and Task Force member and requested written responses before the Advisory Committee meeting in mid-August. DEQ provided a list of the major revisions it had made and an explanation for those revisions. DEQ explained in detail what it could and could not do under Virginia law and permit regulations, since the new general permit must comply with both the law and the regulation.

DEQ's cover letter with the second permit draft discussed three important issues. First was the permit length. The state law and the permit regulation state “. . . the term of a VPA permit shall not exceed 10 years, except that a VPA permit for concentrated operations shall not exceed five years. . . .” Thus, permits for operations greater than 1,000 animal units and for longer than 5 years would require a change in the state law and permit regulation.

The second issue related to some Advisory Committee members' suggestion to regulate poultry operations. Under the permit regulation, an operation must obtain a permit if it meets three conditions:

1. It must be an animal feeding operation;
2. It must exceed a certain number of animals; and
3. Treatment works are required to store waste water.

If an operation meets only two of the three conditions, no VPA permit is required. Since poultry operations typically use a dry litter disposal system and do not have liquid waste storage facilities, they are not required to have a VPA permit.

The third issue was requiring permits for all feeding operations greater than 100 animal units (to be consistent with the Coastal Zone Management Act). The permit regulation requires operations over 300 animal units which meet the three conditions above to have permits. Hence, the permit regulation would have to be changed to mandate permits for smaller operations. However, DEQ pointed out that operations with less than 300 animal units could be regulated if the operation has the potential to or actually contributes to pollution of state waters.

The meeting of DEQ, the Advisory Committee, and the Task Force to discuss the second draft addressed each major issue raised during the review process. On most issues there was much discussion as members of the Advisory Committee and Task Force attempted to understand the perspective of the various groups. The main issue was the amount of regulation necessary to protect the environment and the amount of regulation that would be burdensome to producers thereby making them uncompetitive in terms of production costs with competing states. Given the composition of the Advisory Committee, the discussion focused more on the competitiveness issue and less on the costs of cleaning up potential environmental contamination.

As with the first draft, one of the more protracted discussions was the need to require monitoring wells at every waste storage facility. Some Advisory Committee members were firmly committed to this position. However, the Task Force was able to convince most members that monitoring wells would not efficiently detect leaks in a karst geological area.

Another issue of importance to many participants was the cost of obtaining and complying with the permit. Some Advisory Committee members did not understand that small agricultural operations cannot pass on higher costs by raising prices of their output as municipalities and large businesses sometimes do. Some members were unaware that even large feeding operations cannot afford to spend significant amounts of time and money obtaining permits, working with state, federal, and local governments, and monitoring the waste management systems. Smaller businesses cannot allocate one or two employees to deal with these issues as larger businesses can. The discussion of these issues helped many Advisory Committee members understand that permit regulations can have significant economic implications, including industries locating in other states.

On the other hand, the agricultural interests were not very sensitive to the environmental community's concern for environmental protection and the potential impact that a large feeding operation can have on the environment. The agricultural interests thought a well-designed permit would result in facilities with adequate safeguards against an environmental disaster. The Chesapeake Bay Foundation thought the committee members were not giving adequate consideration to the costs of cleaning up environmental problems caused by feeding operations.

The grazing restriction after land application of animal waste was removed from the second draft. This change caused considerable debate since the Department of Health still thought a restriction was necessary to protect human health. The Task Force continued to argue that there is no scientific evidence to support this position at any reasonable level of risk. The discussion on this issue did not reach consensus, and the issue was left for DEQ to decide.

The whole structure of the new general permit really began to take shape when the participants agreed that a certified Nutrient Management Plan (NMP) enforceable by DEQ would be made part of the permit. The Soil Conservation Service and Department of Conservation and Recreation would help design the lagoon and NMP for each site and certify that all nutrients were properly accounted for. However, they did not want to have regulatory responsibility. By making DEQ responsible for enforcing the NMP (including the storage treatment facility) and then including the NMP as part of the permit, Soil Conservation Service and the Department of Conservation and Recreation would not have regulatory responsibility.

The remaining major issue was whether DEQ had sufficient staff to adequately monitor and enforce the NMPs. Some members of the Advisory Committee were not satisfied with past enforcement efforts and were very concerned about the level of enforcement that DEQ would employ. Agricultural groups and individuals were pleased with the NMP approach because they wanted to work with regional and local offices of the Department of Conservation and Recreation and the Soil Conservation Service in developing NMP plans.

The considerable debate on all 12 issues in Table 3 had continued with the second draft. On most issues, some consensus was reached as to an appropriate compromise position. On the issues where no consensus was reached, the DEQ indicated they would consider all suggestions and use their best judgment in developing a third draft of the permit.

Third Draft of General Permit

The third draft of the general permit was completed by DEQ in early October 1993 and sent to Advisory Committee and Task Force members. The one surprise in this draft was the reappearance of the 30-day grazing restriction and the inclusion of a 60-day control of general public access after application of waste to pastures which had not appeared in the first and second drafts. VDACS tried to resolve this issue with Department of Health personnel. According to VDACS, the application of animal waste to pastures was an issue for the state veterinarian, not the Department of Health. The state veterinarian wrote a second letter to DEQ stating that animal waste applied to land which was subsequently grazed by animals destined for human consumption posed no health hazards to the public. The Task Force agreed with this position. The Department of Health maintained that there was still a risk to human health, although the risk was, admittedly, small. They maintained their position that a grazing restriction was desirable to protect public health.

The Water Board's approval of the third draft of the general permit for public comment allowed DEQ to issue a "Notice of Public Comment Period of VR-680-14-23 VPA General Permit for Concentrated Animal Feeding Operations of Swine, Dairy, and Slaughter and Feeder Cattle" on November 15, 1993. Public meetings were set for early to mid-January 1994 in Williamsburg, Wytheville, and Harrisonburg. Written comments on the proposed regulation and costs and benefits of the regulation were accepted until January 28, 1994.

The Task Force reviewed the proposed permit and decided to comment on two issues: the 5-year limit and the 30-day grazing restriction. They reiterated their concerns about these two provisions at the Harrisonburg meeting. Many producers at the meeting thought the monitoring, reporting, and buffer zone requirements were unreasonable, too costly, and too intrusive for individual farm operations.

LEGISLATIVE ACTION

In December 1993, the Virginia Farm Bureau gave three reasons for not being satisfied with the new general permit and requested legislative relief:

1. Virginia livestock farmers were at a competitive disadvantage to farmers in neighboring states;
2. The five-year limit could cause difficulty in obtaining financing; and
3. Virginia loses millions of dollars in potential new investment as the hog industry moves to North Carolina.

Therefore, the Virginia Farm Bureau supported legislation [HB 222] in the 1994 General Assembly to make all VPA general permits ten years in duration and to mandate by law what could be included in a VPA general permit. The requirements in HB 222 were less stringent than those proposed in the third draft of the general permit developed by DEQ. DEQ, the Chesapeake Bay Foundation, the Department of Conservation and Recreation, and the Virginia Farm Bureau spent many long hours negotiating the final draft of the bill with legislators. Task Force and VDACS personnel answered a myriad of questions posed by these groups during the legislative session. On March 7, 1994, the General Assembly passed the Senate substitute for HB 222 which created section 62.1-44.17.1 of the Virginia Code entitled *General Permits for Confined Animal Feeding Operations*.

The law defined a confined animal feeding operation, established procedures for registering under the general permit, and set design and operation standards for general permits for confined animal feeding operations. These design and operation standards included:

1. storage facilities to prevent discharge into state waters,
2. NMP basic requirements,
3. buffer zones for land application of waste,
4. monitoring requirements,
5. lagoon design criteria, and
6. statements concerning general operation and maintenance of waste treatment facilities.

Fourth Draft of General Permit

The DEQ now had to modify its proposed new general permit for concentrated and intensified animal feeding operations to be consistent with the new law. The DEQ issued its proposed draft of the VPA General Permit for Confined Animal Feeding Operations on May 2, 1994. DEQ designed the new permit by modifying the proposed concentrated and intensified general permits it had developed. The revisions basically included adding a registration statement and deleting many of the monitoring, sampling, and reporting requirements contained in the concentrated and intensified permits. The Task Force was asked to respond to the new general permit by May 13, 1994. The DEQ plan was to submit the new permit to the Water Board Citizens Advisory Board on May 23, 1994, and have the new permits become effective on July 13, 1994. The Citizens Advisory Board approved the confined feeding operation general permit on May 23, 1994 and the final regulation was published in the Virginia Register on June 13, 1994.

On July 8, 1994, the Chesapeake Bay Foundation requested an opportunity to submit oral and written comments on the proposed new permit. Under the Administrative Process Act, if 25 citizens request a 30-day extension for any new proposed regulation, a 30-day comment period must be granted. Since 30 individuals requested the review, it was granted.

The Chesapeake Bay Foundation argued that six changes that DEQ had made in the final draft of the general permit were inconsistent with the recommendations of the Advisory Committee and were changes of substantial impact. The concerns were:

1. making monitoring wells optional instead of required;
2. changing the frequency of groundwater monitoring from twice a year to once every three years;
3. excluding the requirement that a registration be filed prior to operation of a facility;
4. removing buffer zone requirements for roadways, property lines, and drainage ditches;
5. removing the requirement for submitting monitoring results as part of the registration statement; and
6. removing the provision for public access to information.

The DEQ suspended the effective date for regulation implementation on July 27 and accepted written comments on changes until August 29, 1994. A public meeting to receive oral comments was held on August 23. The Task Force made a detailed response to the Chesapeake Bay Foundation's concerns. DEQ took the comments from the Chesapeake Bay Foundation, the Task Force, and others under advisement, but made very few changes to the final general permit. The Water Board passed the new general permit for confined animal feeding operations on September 19, 1994, and the regulation became effective November 16, 1994.

INDIVIDUAL VERSUS GENERAL PERMIT PROVISIONS

All confined animal feeding operations that have more than 300 animal units on a bare lot for more than 45 days and use a liquid storage treatment facility are required to have either an individual or general permit. A compromise was reached on most major issues identified. The main provisions of these permits are summarized and compared in Table 4. Each individual permit is written for a specific operation, species, and land site. The provisions shown in Table 4 for an individual permit have generally been written for large swine operations in Southeast Virginia. In terms of permit length, the new general permit is good for ten years starting November 16, 1994. However, those who register under the general permit will have a permit that expires on November 16, 2004, no matter when it is obtained. Individual permits good for ten years are still available.

The general permit application process is streamlined to a one-page registration form. But the registration form must have two attachments. The first is a letter from the Department of Conservation and Recreation certifying that the operation has an acceptable NMP. The second is a signed local government ordinance form indicating the proposed operation is in compliance with all local zoning ordinances. These two attachments may take considerable time to obtain, but once they are obtained, the registration form for a general permit can be processed in less than one month.

Table 4. Individual versus general permit provisions.

Item	Individual	General
Permit Duration	Concentrated-5 yrs. Intensified-10 yrs.	10 yrs. Expires 11/16/2004
Size of Operation	Intensified-300 AU ^a Concentrated-1000 AU	Confined-300 AU
Permit Application	Extensive information on farm size, location, number of animals, topography, soils, facilities, waste management plan, etc.	Registration (2 pages) <ul style="list-style-type: none"> • Operation location and size • NMP approved DSWC • LGOF approved by local government •
Public Hearing	For each individual permit. 30-day comment period.	Once for general permit. None for individual operations
Nutrient Management Plan (NMP)	Intensified-No/Maybe Concentrated-Yes	Yes (enforceable by DEQ) <ul style="list-style-type: none"> • site map (facilities and waste sites) • soil types and productivities • sampling plan waste and soil • storage and land area required • waste application rates • waste application records •
Local Governance Ordinance Form (LGOF)	Yes	Yes
Lagoon Liners	Liners may be required depending upon site	Certified clay or synthetic liner required
Monitoring Wells	Concentrated-all sites Intensified-some sites	Only if high water table within 1 foot of lagoon bottom
Buffer zones	Roads - 25' Occupied dwellings - 200' Water supply wells or springs - 100' Surface waters - 50' Property lines - 25' Rock outcroppings - 25' Limestone outcroppings - 50' Drainage ditches - 10'	Occupied dwellings - 200' Water supply wells - 100' Surface waters - 50' Rock outcroppings - 25' Limestone outcroppings - 50'
Reporting	<u>Annual report</u> on waste, soil, and groundwater monitoring results. Summary animal waste produced Yearly waste balance Crop summary <ul style="list-style-type: none"> • Timing of harvest • Crop yields • Lime and fertilizer application General statement performance of waste facilities	<u>Maintain records</u> for 2 yrs. <ul style="list-style-type: none"> • Waste application site and rate • Application schedule • Crops planted

Table 4. Individual versus general permit provisions.

Item	Individual	General
Grazing	15-30 days after surface application of waste	No restriction
Facilities Closure Plan	Yes <ul style="list-style-type: none"> Wastes left, removal procedures, closure plans. 	No
Monitoring		
Groundwater	12x/yr <ul style="list-style-type: none"> Total Kjeldahl Nitrogen pH NH₃ - N NO₃ - N NO₂ - N Total Organic Carbon Chlorides Fecal Coli Total Copper 	1x/3 yrs <ul style="list-style-type: none"> Static Water Level Ammonia Nitrogen Nitrate Nitrogen pH Conductivity
Soil	2x/yr <ul style="list-style-type: none"> Nitrate-Nitrogen Ammonia-Nitrogen Total Kjeldahl Nitrogen Samples taken at 6", 18" and 36" 	1x/3 yrs <ul style="list-style-type: none"> pH Phosphorus Potash Calcium Magnesium Nitrate
Waste	Total Flow - Daily Total Flow each Site - Daily Total Kjeldahl Nitrogen-4x/yr pH - 4x/yr Ammonia - N - 4x/yr Total Phosphorus - 4x/yr Total Potassium - 4x/yr Total Copper - 4x/yr Total Solids - 4x/yr Plant Available N - 4x/yr	1x/yr <ul style="list-style-type: none"> Total Kjeldahl Nitrogen Ammonia Nitrogen Total Phosphorus Total Potassium Magnesium Moisture Content
Operators and Maintenance Manual (O&M)	<ul style="list-style-type: none"> Waste treatment process Specific operation and maintenance information Schedules of operation Sampling and testing protocols Record keeping 	Facilities shall be maintained in good working order. Manufacturers operating and maintenance manuals shall be retained for reference.

^a AU = animal units equivalent to 1,000 pound dairy cow.

One big difference between the individual and the general permit is the public hearing requirement. Each individual permit must be published in a local newspaper for 30 days. If considerable objection to the permit issuance is raised, DEQ may hold a public hearing before issuing the permit. Depending upon the public comments, DEQ may change the permit or decide not to issue it. Under the general permit, no public hearing is required for the individual registrant. Once the applicant files a completed registration form, the permit should be granted.

The heart of the new general permit is the NMP developed by the Department of Conservation and Recreation and enforced by DEQ. If operations follow the plan, no nutrients should reach state waters except in case of a 24-hour, 25-year storm. Making the NMP an enforceable part of the general permit reduces the number of soil, water, and waste-water restrictions, since these are included in the NMP. This approach maintains site-specific plans for each operation, hence maintaining flexibility and adaptability to each individual situation. Of course, the effectiveness of the NMP will depend upon operation compliance to the plan and DEQ enforcement efforts.

The *monitoring* requirements are substantially less under the general permit. Under the general permit, 20 parameters must be evaluated and 15 samples taken over a 3-year period. Under most of the individual permits, 22 parameters must be evaluated and 54 samples taken over a 3-year period. If properly taken and evaluated, the samples required under the general permit should be adequate to determine if Virginia's waters are being protected.

Monitoring wells is only required when the bottom of the lagoon is within one foot of the seasonal high water table. With appropriately installed clay or synthetic liners, there should not be any leaks. Hence, the general permit requires certification by a professional engineer or the manufacturer that the liner has been properly installed. With this assurance, there is little need for water monitoring except in cases where the lagoon is placed in areas close to or below the high water table.

The *reporting* requirements under the general permit are substantially reduced. Operators must only keep records for two years and these records are only sent to DEQ when there is an investigation under the permit. Combined with less monitoring, the paperwork associated with the general permit should be significantly less than for the individual permit. Whether adequate documentation has been required under the new general permit will be determined if a problem occurs.

The new general permit has no grazing restriction, which should permit operators to utilize their waste in a way that increases profits and causes no human-health hazard.

PUBLIC INVOLVEMENT PROCESS LESSONS

The DEQ is to be commended for involving the public through the Advisory Committee and Task Force. It recognized early in the process that it did not have all the technical knowledge it needed to write appropriate regulations in the area of animal waste management. And it was committed to finding a way of streamlining the permit process and compliance while fulfilling its regulatory mandate to protect Virginia's environment. It is also to be commended for selecting an Advisory Committee that represented all the points of view and for guiding the process in a way that permitted each member of the Advisory Committee and the public to have maximum input into the process.

The state governmental agencies were fully engaged in the process. VDACS, the Department of Conservation and Recreation, the Soil Conservation Service, the Department of Health, and DEQ fully presented their views and provided considerable input at each point. These agencies had a number of public discussions about their regulatory responsibilities and how they might work together to streamline the process, reduce their enforcement costs while continuing to meet their regulatory mandates, and reduce compliance costs for producers. These agencies had many discussions outside the Advisory Committee meetings in an attempt to resolve their differences and coordinate their efforts.

The Task Force was able to provide valuable technical information. But in several instances, members of the Task Force felt additional research was needed before certain issues could be resolved. Their desire was to postpone implementation of a new general permit until additional research could be completed. On several occasions they showed a hesitancy to make informed, professional judgments based on their expertise. It was helpful to have people on the Advisory Committee who were familiar with politics and policy making and who understood the need to move forward before “scientific answers” were available for all questions.

The executive secretaries of the dairy, swine, beef, and poultry industries were notified early in the process of the potential impact of the general permit on their industries. Producers in these industry groups did not appear to be very involved in the permit development until late in the process. Few producers showed up at public information and public hearing meetings. These groups may not have realized the potential impact of this new permit regulation, thinking that it would only affect a small number of large producers. But there was some discussion about requiring all units greater than 100 animal units, as well as poultry, to obtain a permit. Had either of these requirements been included in the final general permit, large segments of the animal industry which were previously unregulated would have been impacted. A notable exception to the above generalization was the Virginia Farm Bureau and the Virginia Agribusiness Council. They had already identified the permitting issue as a serious problem for producers and were heavily involved in the process at each step. The commodity groups may have reasoned that the keen interest and involvement of these organizations in this process would protect the interests of their members.

The initial public informational meetings were not very helpful from a producer standpoint. By design, DEQ held these meetings to let producers and citizens know about its desire to develop a general permit to help alleviate some of the problems surrounding individual permits. Very little information was provided to producers before the meetings. As a result, the comments of producers were not very focused. Many producers had never applied for, seen, or heard of an individual VPA permit. There was little basis for them to make informed comments, hence some of their comments were not relevant to the general permit issue. DEQ should be commended for asking for input before it developed the permit, but those who have not been previously “regulated” in this manner need more information before the meetings in order to provide constructive input. The comments and input were much more directed and helpful in the two meetings in areas where individual operators had experience with VPA permits for feeding operations. These meetings provided many ideas, complaints, and suggestions for DEQ to use in developing the first draft of the general permit.

Positive Outcomes of the Public Involvement

Involving the public in the permit development process had several positive results. First, much learning occurred during the Advisory Committee meetings. The discussions helped various members understand the perspective and unique problems each group faced. For example, some of the governmental agencies, especially those not directly related to agriculture, were initially unaware of the economic impact of their regulations. Their perceptions and attitudes were that increased costs caused by regulation would be passed on to consumers. They did not appreciate that small businesses in a competitive industry cannot immediately pass on costs. They also found it hard to believe that their regulations would cause some operations to move to other states where regulations were apparently less stringent. A positive outcome of this process was an increased awareness among governmental personnel of the economic consequences of regulation.

Second, the Task Force was able to provide considerable scientific expertise although there were some questions about groundwater, nutrient movement, buffer zones, and health risks that could not be fully answered based on currently available research. In these instances, members of the Task Force provided their best professional judgment.

Third, additional learning in the process occurred outside the Advisory Committee meetings. On some of the issues, consensus was not reached during the Advisory Committee meetings. In such cases, many conversations occurred as individuals attempted to more fully understand the various facets of each issue and potential ways of achieving a compromise. Spacing the public informational meetings, Advisory Committee meetings, and public hearings one to two months apart gave the participants time to think, collect information, and interact with others.

Disappointments

The Chesapeake Bay Foundation was disappointed with several aspects of the public process. First, the Advisory Committee had representation from all interests, but the Chesapeake Bay Foundation believed it was the only group whose primary concern was for the environment. Most of the other members were either directly involved in agricultural production or directly involved in representing, supporting, or regulating agriculture. The Chesapeake Bay Foundation was concerned that it had little chance of influencing the outcome of the Advisory Committee process. While it supported public involvement in permit development, it believed the representation between the various interests should be more equally balanced between those being regulated and those having environmental concerns.

The Chesapeake Bay Foundation's second concern centered around permit enforcement by DEQ. It was supportive of the NMP approach, but was very concerned about DEQ's inspection program to ensure NMP compliance by confined animal feeding operators. The subsequent reduction in DEQ budgets and personnel indicate this concern may have been well founded, although DEQ personnel argue that enforcement capability has not been reduced.

The third concern of the Chesapeake Bay Foundation was the requirement that ground water sampling occur only once every three years. Several of the members of the Advisory Committee believed ground water sampling should be more frequent when monitoring wells was required, but the DEQ decided not to change this requirement. The Chesapeake Bay Foundation believes monitoring every three years is not adequate in terms of detecting potential water pollution problems.

Legislative Process Lessons

The Virginia Farm Bureau and the Chesapeake Bay Foundation were the least satisfied with the whole process. The Virginia Farm Bureau felt that the new general permit did not provide adequate regulatory relief and that it would continue to place Virginia's producers at a competitive disadvantage to producers in neighboring states. Consequently, they went outside the DEQ permit development process and sought regulatory relief through the General Assembly. In all fairness, however, the Virginia Farm Bureau indicated early in the process that it would go to the General Assembly if it were not satisfied with DEQ's new general permit. Although DEQ continued with its process of approving a new general permit, once the Virginia Farm Bureau supported legislation defining the terms of a general permit, the real debate and discussion moved to the General Assembly.

The Virginia Farm Bureau, the Department of Conservation and Recreation, VDACS, and DEQ tried to work out an agreeable general permit regulation. Many of the issues discussed during the DEQ general permit development were revisited, but this time the starting point was the proposed bill, not the DEQ's proposed general permit. The Task Force provided information to all the participants during the General Assembly discussion. The big difference between the DEQ process and the General Assembly process was time. During the DEQ process, participants had weeks to evaluate proposed regulations. In the General Assembly process, participants had only hours to review documents and make comments. *Without the prior DEQ general permit development process, the information going into the General Assembly process would have been of much lower quality.*

The general permit law passed by the General Assembly specified that the new permit regulation would be more streamlined and require less monitoring and reporting than the proposed DEQ general permit would have. Thus, the new law favored producers as represented by the Virginia Farm Bureau's actions. The DEQ had to change its proposed general permit to be in conformity with the new law.

CONCLUSIONS

Public involvement in the development of a new general permit seemed to work well. Overall, all the participants gained useful information and insight into the concerns and needs of the groups involved. The process was well designed and implemented by DEQ. It provided adequate time for input from all groups involved. The inclusion of a technical advisory group helped everyone understand the technical issues involved. The DEQ permit drafts attempted to balance all the interests of the various participants. However, the Virginia Farm Bureau which most actively represented the farmers being regulated, and the Chesapeake Bay Foundation, which represented the environmental community, felt differently. Although the Virginia Farm Bureau did not accept the final outcome of the DEQ permit development process and sought regulatory relief through the General Assembly, the Advisory Committee and Task Force involvement provided information, ideas, and understanding that would not have been available otherwise. Many of these ideas and suggestions are incorporated into the new general permit.

The real question is whether the benefits of public involvement exceed the costs in developing a new permit regulation. Each member of the Advisory Committee and Task Force spent considerable time on this permit development. The DEQ spent large amounts of time in public information meetings, ad hoc advisory committee meetings, Task Force meetings, draft preparation, and public hearings. Some of these steps are required for any new permit regulation. But the Advisory Committee and Task Force involvement are not. The DEQ probably cannot afford the time and resources for this level of public involvement on all new permits. However, DEQ is pleased with the new general permit for feeding operations. It learned many worthwhile lessons in developing the first general VPA permit and is using this experience in developing general permits for other industries. The new general permit also reduces the DEQ's workload in terms of application processing. For these reasons, the DEQ believes the substantial amount of public involvement in the first general VPA permit was worth the extra time and expense.

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