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**FINAL TECHNICAL WORK PAPER
ROLE OF GOVERNMENT**

**For the
GENERIC ENVIRONMENTAL IMPACT STATEMENT
ON ANIMAL AGRICULTURE IN MINNESOTA**

**PREPARED FOR:
MINNESOTA ENVIRONMENTAL QUALITY BOARD**

May 12, 2001

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EXECUTIVE SUMMARY

ROLE OF GOVERNMENT TECHNICAL WORK PAPER

The appropriate role of government is particularly difficult to identify in the context of animal agriculture. Regulatory issues are intertwined with social issues, the size and nature of farming operations is rapidly changing, there is a long history of special treatment for agricultural operations, and rural development patterns are bringing more non-farmers in contact with farming operations.

This technical work paper examines the role of government in regard to animal agriculture in Minnesota. The paper investigates a number of government programs that effect feedlots including grants and loans, permits and enforcement, and environmental review; examines the efficacy of those programs; and makes recommendations for changes.

The main findings of this technical work paper are:

- The controversy over animal feeding operations has been considerable and is likely to continue to be so. To reduce this controversy, government needs a more transparent, more integrated approach that relies on innovative ways of doing business.
- The current process relies too heavily on citizens, especially in triggering inspections, and this overreliance aggravates local conflicts and undermines confidence in government. Regulatory inspections of feedlots are driven by citizen complaints and citizen involvement is critical for permitting and environmental review.
- Government agencies have not developed a clear set of widely accepted and publicly acknowledged priorities for feedlots, and have not developed a good system for deploying the range of compliance tools that could be used to help address feedlot problems.
- The new MPCA feedlot rules involve some significant tradeoffs, including using generally applicable technical standards in return for a streamlined permitting process and reducing opportunities for public involvement in return for speeding up permitting.
- Opportunities for constructive dialogue between producers, government agency staff, local citizens and public interest organizations concerning proposed animal feeding operations are limited.
- Information about the state's feedlot management program is not easily accessible.
- The Legislature has made a number of alterations to the regulatory and environmental review procedures involving feedlots. These changes have been made with no clear overall program goals and, in some cases, may have reduced the flexibility of government agencies to anticipate or respond to feedlot problems.
- There is a significant funding shortfall of funds available to meet the cost-share requirements created by the 2000 Legislature, hampering efforts to bring smaller feedlots into regulatory compliance.

- Only 1.2% of the feedlots receiving permits for the five years from 1993 to 1997 underwent EAW review. Although EAWs are not common, when EAWs are used the process is generally effective in identifying environmental issues, addressing those issues in permitting conditions, and providing a meaningful role for the public in project review.
- MPCA has made some effort to address the cumulative impacts of large feedlot developments but availability of data, definition of information needs, and fairness issues remain to be resolved.

Based on these findings, the following main recommendations are made:

- In consultation with producers and the public, identify two or three clear priorities that will be the focus of the feedlot efforts over the next few years. The process of identifying these priorities can help build the consensus needed on what the central problems are. Focusing on a few clear priorities should improve the use of limited agency resources, provide increased clarity to producers about the environmental issues the state is likely to pay most attention to, and allow the agencies and the producers to demonstrate real progress in improving environmental conditions.
- Once the priorities are identified, develop an "integrated compliance management system" to address these priority issues. Compliance tools should be selected based on the nature of the problem rather than picking an existing compliance tool and trying to make it work in the context of a particular problem. There are a wide range of tools that could be used, including voluntary stewardship programs, enforcement, financial and technical assistance, trading programs and self-audits.
- Provide new opportunities for public dialogue. Increasingly, businesses, government officials, and environmental advocacy organizations are recognizing the value of informal, early discussions about a proposal as a way of spotting and resolving concerns before they become issues in a formal legal process. Currently EAWs provide early public involvement opportunities, but these are used for only a small fraction of the feedlots receiving permits. Producer organizations and the state should look for ways to facilitate informal public dialogues regarding new or expanding feedlot operations.
- Provide better environmental outcome measurement and reporting. By focusing on specific problems, environmental baselines can be established and progress can be measured in improving environmental conditions. There are substantial efforts underway to gather information regarding environmental conditions in Minnesota. The information that is available should be integrated with the new feedlot registration program and made readily accessible to farmers, government agencies and the public. In addition, this GEIS should provide information regarding the environmental impacts of various agricultural methods. These two information sources could be used to help identify the potential impacts of specific project proposals and assess cumulative impacts.
- Create an emerging issues research agenda. The state may still be suffering from the consequences of its failure to identify the rapid changes in animal feeding operations, particularly swine operations, in the early 1990s. This inability to quickly respond led to a great deal of controversy, diminished confidence in government and made it difficult for government, the public, and producers to deal with each other. The state,

through an advisory group such as the Feedlot and Manure Management Advisory Committee (FMMAC), should establish an emerging issues research agenda. Research could be accomplished through updates of the GEIS.

- Improve data management for feedlots. Information about feedlot management and environmental review is currently scattered among counties, MPCA regional offices and various state agencies. This situation makes internal management difficult and makes it virtually impossible for the public, the legislature, or others to understand what progress is being made in improving environmental conditions or to evaluate the performance of the counties or state agencies. The new registration system established in the MPCA rules provides an excellent starting point for building a data system.
- Develop a “feedlot EAW.” There is already a new form for EAWs, which was created just for review of feedlot projects. This form could continue to be used with more attention given to mitigative measures, alternatives and cumulative impacts. There has never been an EIS prepared for a feedlot in Minnesota, and it is likely that EAWs will continue to be the primary method of accomplishing environmental review for feedlots. EAWs have been fairly successful in providing for citizen involvement with projects and identifying issues and conditions to be included in permits and with some improvements could better serve these roles.

Included below is a chapter by chapter summary of the Role of Government Technical Work Paper.

Chapter 1—A Summary of the Literature Related to the Role of Government

The first part of this chapter contains a condensation of the original Literature Summary for Topic C prepared for the Minnesota Environmental Quality Board in 1999. The second section of the chapter is a review of some additional materials that the EQB staff requested be examined in greater depth.

Fourteen articles were reviewed in depth for this chapter. A number of the articles discussed the regulation of agriculture, tracing its history and the problems of environmental regulation of agriculture. The appropriate level of government to regulate agriculture is examined and the impact of environmental regulation on the growth of the hog industry is evaluated. Three articles discussed the issue of nuisance and right-to-farm laws. Two articles examined corporate farming and the impact it has had on the nature of farmers’ work and measures states have taken to address the issue (primarily corporate farming laws). The chapter concludes with a summary of the April 1998 study by the Legislative Auditor evaluating the environmental regulation of feedlots by the Minnesota Pollution Control Agency.

Chapter 2—Grant, Loan and Tax Programs

This chapter describes the major grant, loan and tax programs that affect animal agriculture. There are three programs that provide the bulk of the funding for most projects. These are: (1) Agriculture Best Management Practices (AgBMP) Loan Program (run by the Minnesota Department of Agriculture); (2) the state Cost-Share program (run

by the Board of Soil and Water Resources, or BWSR); and (3) the federal Environmental Quality Incentive Program (EQIP) run by the USDA Natural Resources Conservation Service (NRCS).

Legislation adopted during the 2000 session explicitly linked the ability of the MPCA to enforce its feedlot rules at the smaller feedlots (those below 500 AU) to the availability of cost-share funding, making the issue of financial assistance to feedlot operators more important than ever. Lacking evidence of an immediate public health threat, the MPCA may not require operators of feedlots under 300 AU to spend more than \$3000 without 75% cost-share, and feedlots under 500 AU cannot be required to spend more than \$10,000 without cost-share of 75% of the upgrade, or \$50,000, whichever is less. However, the cost-share funding needed to cover these upgrade costs is not currently available. According to a recent report by the Minnesota Department of Agriculture, an additional \$73 million in cost-share funding will be needed over the next ten years just to cover the estimated construction costs associated with basins and runoff controls.

Moreover, existing cost-share programs do not cover all the different types of costs related to bringing a feedlot into compliance with the new rule. Yet another \$73 million is estimated to be needed for engineering assistance, manure management planning and manure handling and application equipment. These additional costs double the cost-share shortfall to \$146 million. It is not clear whether the 2000 legislation was intended to apply to these additional costs or not. By failing to distinguish between the kind of costs typically eligible for cost-share and other kinds of costs, the 2000 legislation either fails to provide all the relief to farmers that it appeared to promise, or makes it impossible for the MPCA to enforce some important provisions of its rule at any feedlot below 500 AU.

Virtually all of the money available as environmental grants to feedlots is provided to address concerns over surface water. Air pollution and groundwater pollution associated with animal agriculture are much more recent and often less obvious issues (even though air issues are the cause of extreme controversy in some rural areas). Although there is a clear need to address surface water problems, the fact that the funding is virtually all driven by surface water protection raises two concerns. First, it means that funding is not available to address air quality problems and funding would be difficult to obtain to address groundwater problems that do not have a surface water component. Second, the focus on surface water means that the farming methods farmers are being subsidized to adopt may protect surface water but may not protect air and groundwater, and could actually harm them.

The study of grants and loans includes the following recommendations:

- Provide substantially more grant funding to address the identified cost-share shortfall and/or the amend the cost share requirements adopted in the 2000 legislation to reconcile it with the level and type of funding that is actually available.
- Broaden the scope of the state cost-share program and BWSR's mandate to ensure that air and groundwater protection measures can be funded and that measures to protect surface water consider other impacts.
- Broaden the authority of the AgBMP program to address issues beyond water quality.

- Work with the federal NRCS to identify ways that air and groundwater concerns can be better reflected in its funding practices.
- Expand funding for sustainable agriculture grants and loans and provide technical assistance in sustainable agriculture methods. In comparison with other aid programs, this funding is minimal and should be expanded to better reflect the need to fund and develop sustainable farming methods.

Chapter 3--Survey of Other States

A survey of eight states was conducted in September and October 2000. The survey covered current feedlot issues, existing laws and programs, and new approaches that are being considered. The states to be surveyed and the questions to be asked were reviewed and discussed with the Citizens Advisory Committee on August 29, 2000. Iowa, Wisconsin, Nebraska, Missouri, North Carolina, South Carolina, California and Idaho were included in the survey.

All the states that were surveyed, except Idaho, are authorized to issue National Pollutant Discharge Elimination System (NPDES) permits. Three states, North Carolina, Nebraska, and South Carolina, have state regulations that are stricter than NPDES standards.

Idaho, which is a large dairy state, has developed new regulations for dairies under a Memorandum of Understanding (MOU). When large dairy operations began to expand in Idaho, the Dairy Association asked the state government to develop a negotiated regulatory arrangement for dairy operations. The result was the MOU.

California also has a significant number of dairies. California's environmental regulations are not directly enforced by the state but rather are decentralized through Regional Water Quality Control Boards.

In the summer of 1995, North Carolina experienced a devastating series of massive spills of hog waste. In response to that, the North Carolina General Assembly ratified a comprehensive "Clean Water Responsibility" bill which called for a moratorium on new and expanding swine facilities, allowed counties to adopt local zoning regulations for larger swine farms, required the development of a plan to phase out anaerobic swine lagoons and sprayfields and directed the adoption of standards to control odors from hog operations. In spite of these regulations, North Carolina reports having 2200 hog feedlots and about 17 million pigs. There is concern that this volume of animal population is not sustainable for the state.

Odor issues are getting attention in the states we surveyed. Iowa reported that it is starting to address odors and Missouri is in the process of developing new rules, which they expect to have in place by January 2002. South Carolina's Confined Swine Operations Act includes provisions for addressing odors. In Wisconsin, agricultural operations are exempt from air quality regulations but the state is in the process of reviewing its programs for air quality as it relates to animal facilities. Nebraska had an advisory group looking into the issue of odor regulation.

The surveyed states differ significantly on what authority local governments have over feedlot facilities. In Missouri, local government involvement is reported to be uncommon and then only if the concern involves human health. Iowa law exempts land and farm buildings from county zoning authority. Wisconsin county governments are involved on a zoning and ordinance level. South Carolina's counties are responsible for land use decisions and can regulate the location of facilities through zoning. North Carolina, like Iowa, specifically excluded farms from county zoning regulations but the 1997 Clean Water bill removed the previous zoning exemption for farms and authorized county governments to regulate hog farms and other agricultural facilities. Idaho's land use planning laws give counties authority to permit CAFO facilities.

Chapter 4—Permit and Enforcement Programs.

Animal feeding operations have many of the characteristics of other difficult environmental problems facing government today: operations number in the tens of thousands, range from very small to very large, the impacts are not always apparent, significant scientific uncertainty remains for at least some of the asserted impacts, and environmental regulation is relatively new to the sector. But animal feeding operations present additional, unique challenges including:

- An industry that is rapidly changing;
- Significant social and economic concerns related to farming, especially family farms;
- A long history of environmental exemptions for agricultural operations;
- The introduction of very large concentrated feeding operations that raise new air pollution and catastrophic spill concerns;
- Rural development patterns that increasingly bring non-farmers in contact with farming operations.

These factors make the role of government in animal feeding operations both very difficult and inevitably controversial. This chapter suggests a number of ways that government can respond to the environmental issues related to animal feeding operations. Based on the research done for this chapter, we found that:

- Conflict concerning animal feeding operations continues to be significant, indicating that government needs to focus on building a better understanding about the key environmental issues that need to be addressed;
- Government resources (both staffing and financial) are quite limited given the large number of animal feeding operations;
- This situation has resulted in overreliance on citizen complaints to drive oversight of animal feeding operations, dividing communities, producing inconsistent environmental results and creating resentment of the MPCA;
- Existing laws and programs have mostly emerged out of a long-standing concern over surface water impacts which, while valid, has meant that air, groundwater and other emerging issues are not adequately factored into government decision making;
- The limited resources require state and local governmental agencies, as well as federal agencies, to focus more precisely on critical problems and better coordinate their collective efforts;

- Government agencies have not developed a clear set of widely accepted and publicly acknowledged priorities for animal feeding operations;
- Government agencies do not have an integrated plan for solving priority problems related to animal feeding operations;
- There is little sense of “team” between MPCA staff and county feedlot staff;
- Some aspects of the current state feedlot management program appear to conflict with federal requirements, potentially threatening the ability of the state to maintain its delegation for feedlots subject to the Clean Water Act;
- Better opportunities for dialogue among farmers, government staff and citizens could help to reduce conflict but few opportunities currently exist for this dialogue;
- The absence of good ambient monitoring data makes it more difficult to build a consensus on the environmental problems that need to be addressed and to assess progress in addressing these problems; and
- Current information systems make it difficult for agency staff and the public to track the number and location of feedlots, complaints, inspections, and enforcement activities, as well as environmental conditions related to animal feeding operations.

We suggest that for state and county governments to be successful in addressing environmental problems related to animal feeding operations, they will have to build a more integrated, problem solving approach. This involves:

- Focusing on a limited number of important issues. Not all environmental issues at all feedlots can be corrected now or even in the next several years. Instead, state and federal agencies, in consultation with the producers and the public could identify two or three clear priorities that will be the focus of feedlot efforts over the next few years. Our review of animal feeding operations suggest that aspects of three problems could be the focus of governmental efforts—nutrient management, concentrating first on impaired waters, priority watersheds and source water protection; runoff into impaired waters or high priority watersheds; and controlling air emissions and associated odors. These are suggested primarily for illustrative purposes. The principal point is that government agencies, in consultation with each other and with the public and producers, should select specific priority issues and work on solving them.
- Developing an “Integrated Compliance Management System” that can be adapted to solve particular problems. Once the problems that will be the focus of governmental efforts are identified, government agencies need to consider how each problem can best be solved and the tools that will help achieve this goal. The compliance tools must be selected or developed based on the nature of the problem rather than first picking an existing compliance tool and trying to make it work in the context of a particular problem. Government agencies do have a wide range of tools from education to cost-share programs to enforcement but these tools have not been assembled in a clear plan designed to solve specific problems. This chapter discusses some of the tools available and lists some new tools that might be developed.
- Coordinating federal, state and local programs.
 - A number of changes to Minnesota’s regulations of feedlots have made the state’s program different from EPA’s. These differences could cause EPA to withdraw some or all of the NPDES program from the state. The state should carefully

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- consider the importance of these provisions in light of the importance of running its own NPDES permit program.
- Develop a stronger sense of teamwork between MPCA, county feedlot officers and technical assistance staff and conduct periodic constructive audits of county feedlot programs. There are wide differences among county feedlot programs and in the past MPCA has done little to assess the performance of delegated counties. The MPCA has proposed to add two staff positions to focus on “partnership building, training, auditing and grant management” with counties. This is an important undertaking. Other steps include implementing a better information management system, developing a closer working relationship between counties and the MPCA and conducting periodic constructive program audits of county programs to assess the status of the programs and help the counties identify ways to improve their programs.
 - Improve intergovernmental coordination. Although there is already some coordination happening, additional coordination is needed on two levels. First, there should be a high level inter-agency planning process. The completion of the GEIS and the beginning of its implementation phase would be a good opportunity to build on the findings of the GEIS and continue momentum for more effective, more comprehensive and more efficient solutions to the priority environmental issues surrounding feedlots. Second, this inter-agency team must have access to ideas and advice from outside parties including producers, public interest organizations, citizens and other interested parties.
 - Implement the new MPCA permit strategy and staffing strategy. The new MPCA feedlot rules contain some important tradeoffs. One tradeoff is using generally applicable technical standards in exchange for a very streamlined permitting process. By trading off permitting flexibility for permitting simplicity, MPCA is able to establish some regulatory relationship with a very large number of facilities. The streamlined process also allows state and county resources to be directed towards improved education, assistance, inspection and enforcement and to increase coordination between MPCA and delegated counties.
- **Provide new opportunities for public dialogue and reexamine limits on public redress**
 - Facilitate an informal public dialogue for large new or expanded animal feeding operations. Public meetings and hearings are an important avenue for public involvement but can be quite formal and rather intimidating for many citizens as well as project proposers. Further, permit related meetings often occur late in the development of a project, making changes difficult. Producer organizations and the state should move toward more informal, earlier dialogue between citizens, the regulatory agency and the producer by developing “good neighbor” approaches that support early notice to neighbors and facilitating informal public dialogues.
 - Relax restrictions on liability/public redress. Restrictions under Minnesota’s “right to farm” law and exclusions for farming operations in the Minnesota Environmental Rights Act reduce citizens’ right of redress against polluting feedlots. There should be some consideration given to relaxing these restrictions.
 - Improve information flow and availability.

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- Surface water, groundwater, and air quality data should be integrated with the new feedlot registration program and made readily accessible to farmers and the public in an easily understandable form. There are substantial efforts underway to gather information about Minnesota's environmental quality, particularly relating to water. These should be built upon, integrated with other sources and made more accessible.
 - The state should establish an emerging issues research agenda. There are several issues associated with feedlots that could benefit from research (including those raised by the GEIS). In some cases, formal scientific research may be needed, in other cases it may be sufficient to simply gather information on research being done by others and present it in a format useful to government agencies, producers, and the public.
 - MPCA should improve its data management system for feedlots. Data for both agency and county activities related to feedlot management and environmental conditions are hard to find, scattered among counties, MPCA regional offices, and hard to analyze. This situation makes internal management decisions difficult and makes it virtually impossible for the public, the legislature, or others to understand what progress is being made in improving environmental conditions or to evaluate the performance of the counties or state agencies. The new registration system established in the MPCA rules provides an excellent starting point for building a data system that identifies all of the feedlots in the state.

Chapter 5—EAW Review

The environmental review procedures for Minnesota were designed to provide information regarding the potential environmental impacts of a proposed project, provide project information early in project development, allow for public involvement, and improve permitting decisions. Environmental review is accomplished through Environmental Assessment Worksheets (EAW) which are relatively short documents and more detailed studies called Environmental Impacts Statements (EIS). No EISs have been prepared on feedlot projects in Minnesota and only 1.2% of the feedlots receiving permits between 1993 and 1997 underwent EAW review.

Nine EAWs for feedlot operations were reviewed in depth for this study. The study found that the EAWs served their mandated purposes by providing accurate information early in the project development, providing an avenue for public involvement, and providing information that was used in permitting decisions.

The study recommends:

- MPCA needs to improve its record keeping. As was discussed in Chapter 4, information regarding EAWs completed by the MPCA for feedlots is scattered and incomplete. Also, in 2000, 51 permits were issued by MPCA for feedlots over 1000 AU. If these permits were all for new or expanding feedlot operations, all should have undergone EAW review (since 1000 AU is a mandatory category for EAW preparation). However, 5 EAWs were prepared in 2000. Without adequate records, it is extremely difficult to determine whether projects that should have undergone

environmental review were “missed” or whether these permits were issued for existing facilities that would not be subject to environmental review rules.

- MPCA should examine the training provided to counties (both delegated and non-delegated) regarding environmental review. During this study, we observed that some county staff were confused about how to prepare an EAW, what level of involvement the county should have as a responsible governmental unit (responsible for preparing an EAW), who should pay for preparation of an EAW and how the information in an EAW can be used in county deliberations.
- The state should develop a “feedlot EAW.” The EAW should require that the negative declaration statement clearly state the issues that have come out in the review process and the alternatives and mitigation measures that can be used to address these issues. The state and other entities should develop a database of background information for air quality and water quality. This information would be available to feedlot proposers to assess the cumulative impacts of a proposed construction or expansion.

Chapter 6—Cumulative Impact

Minnesota environmental review rules define cumulative impact and require that cumulative impacts be addressed in deciding the need for an environmental impact statement. However, little guidance is given regarding how this issue is to be addressed.

The MPCA has attempted to address cumulative impacts in the environmental review of feedlot operations. In the last few years, the MPCA staff has issued two guidances regarding cumulative air quality evaluations for feedlot operations.

The chapter discusses the efforts made by the federal government, Massachusetts, and New York to address cumulative impacts within their jurisdictions. It also examines some of the methods used to address cumulative impacts.

One of the key issues for cumulative impact assessment is that of fairness. If a project is to be assessed in regard to past and future developments in an area, who should pay for that assessment and should development be delayed while that information is being developed? The fairness issues can best be addressed if cumulative impact is divided into levels of analysis.

The chapter suggests dividing cumulative impacts into four levels:

- Worldview issues. Recent EAWs prepared by MPCA have discussed large issues including global warming, atmospheric acidity, and ozone layer depletion. Until standards or guidelines for states, regions, or smaller areas are established, it is difficult to assess in any meaningful way the impact that a single project could have on these wider issues.
- Feedlot macro issues. These are the “big picture” issues that relate to feedlots and can best be addressed on a statewide level (in the GEIS or other studies). These issues include such things as the health impacts of feedlots, different types of feedlot technologies, and identifying certain sensitive environmental areas in the state.

- Existing conditions. This type of information could be generated by monitoring systems or by modeling and would take into account specific developments within an area. There are substantial efforts underway to gather information regarding the environmental conditions in Minnesota. The information that is available should be integrated with the new feedlot registration program and made readily accessible. The GEIS could be expanded to include this information.
- Micro-level issues. This would be addressed in a project specific review and involves the particular impacts of a specific project. Development of this information would be the responsibility of the project proposer.

A cumulative impact assessment for a feedlot should use the existing conditions information and layer the feedlot macro information and the project specific impacts onto it. Although the worldview issues need to be considered, it is unlikely that they can be addressed in a meaningful way in a project specific review. By dividing the responsibility for developing the information, however, the burden of the review is lessened and the quality of the review should be improved.

Chapter 7—Recent Government Actions and Policy Implications

In the past two years, there have been a number of actions that have affected feedlot operations in the state. This chapter briefly reviews the court cases, statutory changes, regulatory changes, and budget proposals that may impact feedlot development and operation.

Over the last few years, six key trends related to the role of government have affected Minnesota's animal feeding operations. First, a wide range of the issues surrounding feedlots is receiving extensive review through the Generic Environmental Impact Statement. The Legislature directed the preparation of the GEIS which examines a number of critical issues and is being prepared in consultation with an advisory committee representing a range of interests and positions on the animal agriculture issue. Second, the state rules regarding feedlots have undergone extensive changes. The MPCA recently adopted new rules that streamline the permitting process while bringing more feedlot facilities under regulatory control. Third, the Legislature has made a number of specific changes to restrict the permitting and environmental review programs for feedlots. Fourth, counties have become more involved in feedlot permitting and oversight. Fifth, citizen complaints have become the major driver for feedlot inspections, a fact that seems to have increased the level of local conflict over feedlots in several instances. And finally, the U. S. Environmental Protection Agency has taken an increasingly active role on issues related to concentrated animal feeding operations.

Preparation of the GEIS for animal agriculture is a demonstration of the importance that this issue has had for the state in recent years. Unfortunately, it also demonstrates how unprepared the state was to address this relatively new industry and the lack of information available on a national or even international basis. By undertaking such a major study and using the Citizens Advisory Committee to review and develop the document, Minnesota is working to address this complex issue in an informed and evenhanded way.

At the same time Minnesota is proceeding with this complex study, the state has moved ahead to make changes in the way it deals with feedlots. These actions have taken place without the benefit of the findings from the GEIS. As a result, if the state decides to implement some of the recommendations evolving from the GEIS, it may be necessary to rescind or modify some of these recent legislative or administrative changes if they are not compatible with the recommended actions.

The second trend is that the rules governing feedlots have been changed. The new MPCA rules provide for more streamlined permitting. This change allows more resources to be directed towards inspections, assistance and enforcement but involves some tradeoffs: less flexibility to adapt to conditions at individual facilities and reduced opportunity for public involvement. This may make it difficult for permit staff to respond to the differences of permitting individual facilities and may serve to discourage innovation and use of new technologies because the innovations are not addressed by the rules. The new rules also limit the opportunities for public involvement, which may increase the frustration of citizens and do little to reduce controversy. As a result, the state will need to look at new ways of encouraging the use of new technology and alternative ways of providing opportunities for public involvement.

Another trend is legislative changes. Over the last few years the Minnesota Legislature has changed the permitting and environmental review requirements for feedlots. These changes have occurred in a piecemeal fashion with no apparent overall strategy for the type of feedlot management program needed in the state. These changes have restricted MPCA's authority, may jeopardize MPCA's federal NPDES permitting status, reduced the ability of the Agency to gather valuable information about air pollution impacts, and limited certain types of environmental review.

Although some of these changes were made to reduce governmental requirements for feedlot operators and improve the business climate, this may not have the intended effect. One of the studies reviewed for this TWP provides some important insight into the issue of government regulation and industry growth. Mo and Abdalla investigated the relationship between the stringency of state environmental regulations and swine industry expansion over the 1988-1995 period. Thirteen states were studied, including Minnesota.

The Mo and Abdalla study found that overall the stringency of environmental regulation did not appear to impact hog inventory growth. While the states' laws "on paper" did not differ significantly, the authors found that two variables in each state's enforcement did have an influence. The amount of fines per violation had the expected negative effect but, significantly, the amount of staff devoted to animal waste management had an unexpected, but strongly positive relationship to hog inventory growth.

Given these findings, the recent regulatory changes that reduced the stringency of the regulations governing feedlots may not be advantageous to the growth of animal agriculture. On the other hand, increasing the number of regulatory staff administering

the regulatory programs may be beneficial to growth of the industry. The Governor's current budget proposal includes funds for additional regulatory staff.

The fourth trend has been increased county responsibility for feedlot permitting and oversight. For counties to be successful in this endeavor, they need adequate staffing and training, especially in light of the rather sophisticated priority setting, coordination and compliance management system approaches suggested in this TWP. MPCA and other state agencies will need to work closely with counties to ensure that counties have the resources necessary to do the job. And MPCA should conduct periodic constructive audits of county programs to help the counties build stronger programs.

The fifth trend is the increasing reliance on citizen complaints to "police" feedlots. The regulatory system currently relies too heavily on citizen participation and too little on the expertise of informed government judgement and expertise. This is true for environmental review and for permitting but is particularly evident in enforcement. Neither the MPCA nor the counties that were studied for this TWP have systems in place to periodically inspect feedlots to ensure compliance with permitting requirements. Inspections tend to be triggered by one of two events: application for a permit or a complaint from a neighbor (and many permits are issued which do not involve an inspection). This problem of the lack of inspection and reliance on citizen complaints was also noted in the Legislative Auditor's report on feedlots in January 1999. The Governor's budget proposal to increase regulatory staff may help to alleviate this problem but additional actions may be necessary to improve inspection abilities.

Finally, the U.S. Environmental Protection Agency has been increasingly active on issues related to animal feeding operations. This may help eliminate some of the concern that a few states will capture business from Minnesota by attracting animal feeding operations through lax regulations. On the other hand it may threaten Minnesota's control over its own feedlot program because some of the recent state legislation appears to conflict with federal regulations. Minnesota should carefully assess its program in light of the more assertive federal presence in this area.

Chapter 8—Alternative Review, GEIS Update, and Additional Work

One of the requirements for a generic environmental impact statement is that it contains a description of an alternative form of review for specific projects whose impacts have been considered in the generic EIS. In Chapter 5 of this study, the "animal feedlot EAW" is suggested as an alternative form of review which would draw cumulative impact information from the GEIS while providing project specific information. There is no mandatory category for a feedlot EIS and there have been no EISs prepared for feedlots in Minnesota. Given this, it is not likely that EISs will be a major form of environmental review in the future. However, as the animal agriculture industry continues to grow, a project-specific EIS for a particular feedlot operation may be warranted. Preparation of a project specific EIS for a feedlot proposal should remain an option for environmental review.

We strongly suggest that one agency be given ongoing responsibility for reviewing and updating the GEIS and that some advisory, stakeholder group (the CAC or some derivation of that group) be involved in these periodic reviews and updates. Formation of an ongoing agency-based Implementation Team, which includes county representatives, and that is advised by a multi-stakeholder group, may be more important than immediate plans for updating the GEIS.

This Implementation Team should ensure that the recommendations of the GEIS get appropriate attention. It should also help develop “spin off” efforts such as a sound research agenda that helps the state identify issues early and develop or integrate a series of area-wide studies that can help identify cumulative effect issues and assist permitting decisions. This Implementation Team, in consultation with the multi-stakeholder group, could also assess the need for any supplement to the GEIS at a milestone period, perhaps five years.

Four additional work tasks are recommended to pursue the role of government issue:

- County information needs. This study would examine the information needs that the counties have to adequately carry out their responsibilities to review, permit and monitor feedlot operations.
- Evaluate implementation of the recommendations in Chapter 4 of this TWP. Chapter 4 identifies some key concerns regarding the regulation of feedlots in Minnesota and recommends a number of improvements to the regulatory system. This additional study would examine these recommendations and evaluate how these improvements might be implemented.
- Investigate the implications of transferring the feedlot regulatory program to the Department of Agriculture.
- Develop a plan for establishing a cumulative impact database. As discussed in Chapters 6, 5 and 4, the state, along with other entities, should establish a statewide database that can be used to assess the cumulative impacts of new or expanding feedlot operations and to assess the progress made for other feedlot programs. The study would involve an examination of the existing data sources in the state with recommendations on how to integrate these sources into a useful format and what additional data needs to be developed.

Chapter 1

A SUMMARY OF THE LITERATURE RELATED TO THE ROLE OF GOVERNMENT

In September 1999 the Minnesota Environmental Quality Board (EQB) as part of the Generic Environmental Impact Statement (GEIS) released a Literature Summary on Animal Agriculture. The Literature Summary was the first step in analyzing the 12 topics that were identified for study in the GEIS during the scoping process. A summary of the literature related to the role of government was one of 12 literature summaries prepared in this process.

In the summer of 2000, the EQB contracted for the preparation of 10 technical work papers to examine issues for the GEIS. As one of the tasks for the technical work paper for Topic C, Role of Government, the EQB directed that the Literature Summary be revised and condensed so that it could be included in the Technical Work Paper.

The first part of this chapter contains a condensation of the original Literature Summary for Topic C. The last section of this chapter is a review of some additional materials. The EQB staff requested that some selected articles be examined in greater depth. Some of these articles were included in the original literature survey, while others were not.

The Role of Government Literature Review undertook the task of documenting and understanding the roles of all levels of government in regulating animal agriculture. The report combined traditional literature review with a cataloging of laws, regulations and rules that address animal agriculture.

The Literature Summary addressed four main questions (which were divided into six questions to facilitate the study). These questions were:

Question 1a: What are the government policies and programs directed at animal agriculture and human health as it is impacted by animal agriculture in Minnesota and other places including regulation, financial assistance and education or other incentives?

Question 1b: How effective are these actions in mitigating problems or encouraging desired outcomes?

Question 2a: What are the government actions and policies of the past, present and future that relate to economics, profitability, size and location; and what are the intended affects of these actions and policies?

Question 2b: How, and to what extent do the government actions and policies catalogued in question 2a affect animal agriculture relating to economics, profitability, size and location?

Question 3: How are public funds for animal agriculture research, education and training currently allocated in Minnesota and how does the allocation of these funds impact the development of animal agriculture and Minnesota citizens as a whole?

Question 4: What are the implications of regulating animal agriculture at the township, county, state and federal level?

The response to Question 1a is primarily a listing of government regulations related to feedlots. For a discussion of the regulatory issues discussed under question 1a, the reader is referred back to the Literature Summary. For another and more succinct discussion of Minnesota's regulations concerning feedlots, the reader is referred to the Minnesota Legislative Auditor's Program Evaluation Report, Animal Feedlot Regulation, January 1999.

Literature Summary for Topic C

The literature review revealed that government involvement in agriculture, including animal agriculture, is generally aimed at achieving one or more of the following goals:

- regulating farm prices and income;
- increasing production;
- maintaining a safe food supply;
- conserving and protecting the environment;
- correcting market failure;
- preserving family farming; and
- addressing other social concerns.

Domestic farm programs have historically provided billions of dollars annually to farmers and landowners. Typically these benefits have gone to crop farmers and to larger farms.

Considerable government attention is directed toward conservation of natural agricultural resources and protection of the environment. USDA programs, including those affecting animal agriculture, target conservation and environmental concerns. The recently announced EPA/USDA Clean Water Action Plan, for example, involves a shift in policy to emphasize control of non-point sources of pollution—particularly animal waste.

Researchers have begun to ask the question of how much environmental regulation actually costs. Some economists are beginning to consider, for example, the appropriate level of subsidy to use to encourage farmers to adopt conservation practices.

Though typically not acknowledged as a farm policy, federal, local, and state taxation policies and U.S. monetary policy have a direct effect on the shape of animal agriculture. A significant body of evidence suggests that tax policy affects the operation and organization of U.S. agriculture in significant ways. Overall, tax policy seems to have encouraged farm expansion and the reduction in the number of farms.

Other areas of government activity that are addressed in the literature and are important to animal agriculture include: trade policy; marketing and demand expansion programs; food safety regulation; programs designed to provide credit to farmers; disaster assistance and crop insurance; regulation of conduct with animals; regulation of sales; and contractual relations of corporate farming.

Question 1: What are the government policies and programs directed at animal agriculture and human health as it is impacted by animal agriculture in Minnesota and other places including regulation, financial assistance and education or other incentives? How effective are these actions in mitigating problems or encouraging desired outcomes?

The researchers for the Literature Summary reported that there were few sources that directly addressed the Role of Government questions on the effectiveness of policies and programs. The literature that was found addressed very narrow policies. A comprehensive study of any single area of legislation would contribute greatly to the knowledge base. The discussion below describes the articles that were reviewed. With the exception of the Edelman et al., stratified survey, the writings are primarily observation and opinion analysis conducted by experts in the policy fields.

Edelman et al., (June 1999) working as a National Task Force of Extension Specialists representing all regions of the nation, designed a survey instrument to determine the impact feedlot policies have had across the US. This stratified survey is a result of a project organized under the auspices of the National Policy Education Committee. One extension specialist in each state was asked to contact land grant university colleagues and state agency staff with appropriate expertise to respond to the survey.

Mark Edelman was contacted again in October 2000 regarding any new developments in this study. No additional work has been done on this study since June 1999. This group hopes to update the survey but does not have funding to do so yet.

Based on the 48 states that responded as of June 18, 1999, the survey found that:

- 38 states indicate that confinement animal feedlot operations are controversial in their state;
- 39 states indicate increased incidences of conflict and attention in the media;
- 22 state indicate legislation was proposed during the past year;
- 19 states indicate court action involving concentrated livestock operations; and
- 16 states have new ordinances or policies passed by local jurisdictions

Swine, followed by dairy and chicken broilers, are the most controversial. The survey provides a recent, comprehensive summary of government oversight for CAFOs.

Lovell and Kuch (1999) discuss the role of the Environmental Protection Agency (EPA) in animal agriculture. They identify some of the gaps and flaws in the present EPA policies utilized for CAFOs. Requirements for land application of manure by CAFOs can be permitted based on the permit writer's best professional judgement. As a result,

permit requirements for land applications vary from state to state and from permit to permit.

Lovell and Kuch further state that nutrient management plans, which incorporate testing of soil and manure for nutrient levels can help determine the correct agronomic rate of combined fertilizer and manure application. Without such testing there is a tendency to underestimate the value of nutrients in manure leading to over application of manure and fertilizer. They question if all NPDES permits should require a nutrient management plan and, if so, should levels of application above crop requirements then be considered point source discharges.

Geographic heterogeneity influences pollution problems stemming from animal agriculture such as soil type, climate and topography, causing considerable variability in both problems and management practices. This being the case, Lovell and Kuch pose the questions: should regulations be on an individual farm basis (numbers and types of animals per farm), or should regulation be based on the entire population of animals permissible within a watershed, or perhaps on all nutrient sources within the watershed.

Matthey and Royer (1999) looked at a Nebraska policy regulating corporations and syndicates and the policy's impact on the Nebraska hog industry. In 1982 Nebraska enacted Initiative 300 (I300), an initiative to regulate non-family farm or ranch corporations and syndicates including limited partnerships. The authors present the hypothesis that the elimination of the corporate organizational option in Nebraska has reduced the organizational flexibility that is available to hog farmers in other states and that was available in Nebraska before I300 was passed. They conclude that I300 has slowed, but not stopped, the growth of the Nebraska hog industry and its associated economic development.

Norris and Thurow (1997) provide a discussion of the agricultural setting and environmental problems in animal agriculture and how they affect both the economics of livestock and the environment. In an overview of federal, state and local policies affecting CAFOs, they argue that environmental policies in animal agriculture are too inflexible to provide much impact on the environment. They observe that EQIP forces livestock producers to follow only NRCS-approved standard technologies for financial reasons even though research or experience in other countries indicate that there are more effective technologies.

Norris and Thurow describe how the potential for flexible incentives could be used to minimize environmental and nuisance damages from animal agriculture and to enhance the environment. For example, programs like EQIP could be used, not just to help offset farm-level costs of complying with environmental standards, but also to steer animal production and the livestock industry to those areas which are more suitable both environmentally and economically, and have long term viability.

Question 2: What are the government actions and policies of the past, present and future that relate to economics, profitability, size and location; and what are the intended affects of these actions and policies?

Throughout American history there has been a tradition of government support for and involvement in agriculture. The literature attempting to survey the role of government is significant—and is especially prompted by writers who analyze possible reforms. The years immediately preceding a Farm Bill seem to spark significant amounts of analysis.

The reason for government involvement in agriculture generally can be reduced to several frequently mentioned rationales. The rationales apply with varying degrees of importance to animal agriculture. The following are common rationales for a government role in agriculture:

- Support of farm income and prices
- Stabilize prices and manage risk
- Increase agricultural production
- Food safety and consumer protection
- Conservation and the environment
- Correcting market failures
- Credit, competition
- Family farming and the structure of agriculture

Several specific areas of farm policy create a role for government in agriculture or suggest important lessons for the role of government in agriculture. These areas are: (1) domestic farm programs; (2) conservation and environmental programs; (3) trade policy; (4) marketing and demand expansion programs; (5) food assistance, nutrition and safety programs; (6) credit programs; (7) disaster assistance and risk management; (8) tax policy; (9) regulation of conduct with animals; (10) regulation of contracts and sales; (11) corporate farming laws; (12) organic and sustainable products and direct marketing.

Domestic Farm Programs

Domestic farm programs are designed to raise or stabilize farm prices and incomes. These programs include price supports, income supports, and loan programs. These programs have historically provided billions of dollars annually to farmers.

Generally farm program benefits have gone to larger farms and likely have benefited larger operations more than modestly sized farms. Along with the total cost of the programs, this may have been their most controversial aspect. Surveys suggest that farmers tend to support a reduction in government intervention in agriculture generally, but also believe that only payments to larger operations should be reduced, so that smaller operations would not face reductions.

Typical commodity programs do not include livestock. Recently, however, USDA has provided direct funds for hog producers. In August 1999 \$100 million will be distributed to producers. This is in addition to \$50 million provided earlier in 1999. The amount

was capped at \$5000 per producer and was aimed at those operations that sold less than 2500 hogs annually.

Conservation and Environmental Programs

Considerable government attention goes to policies that are designed to conserve or regulate agriculture. Some critics argue that conservation should be the primary purpose of farm program spending. Most observers agree that the role of government in the realm of environmental policy for animal agriculture is bound to increase in the near future.

The present role of government in conservation and environmental protection might be divided into the following several categories: (1) USDA programs; (2) EPA and state regulation of animal feeding operations; (3) liability issues; and (4) other concerns.

1. USDA Programs

USDA programs, including those affecting animal agriculture, target conservation and environmental concerns in a number of ways. Programs include Environmental Quality Incentive Program (EQIP), Conservation Reserve Program, Wetland Reserve Program, and Wildlife Habitat Incentive Program.

EQIP, established in 1996 by the FAIR Act, may be the most important of the USDA programs. EQIP combines the functions of several other programs to encourage farmers and ranchers to adopt practices that reduce environmental and resource problems through targeted 5-10 year contracts providing education, technical assistance, and financial assistance. Congress authorized substantial resources for EQIP and required that half of all EQIP funds be devoted to conservation practices related to livestock production.

The Act requires that maximum environmental benefits be achieved per dollar spent, and also requires that large confined livestock operations be ineligible for cost sharing to construct animal waste management facilities. The definition of large confined livestock operation proved especially contentious for USDA. It seems certain that future subsidies or payments designed to address environmental problems in animal agriculture will trigger disputes about the extent to which the subsidies should go to large operations.

2. EPA and State Regulation

EPA and USDA recently announced a Clean Water Action Plan. The plan is designed to emphasize control of non-point sources of pollution. The new initiative aims to work within the context of existing laws and programs. In October 1997 EPA and USDA were instructed to develop the plan. The plan places particular emphasis on the management of animal waste. EPA will use current regulatory authority to address standards and permits for larger animal operations. EPA and USDA are to develop a unified national strategy to minimize the environmental risk and public health impact of AFOs.

One notable aspect of the cooperation between USDA and EPA is the perception of a significant culture difference between the two agencies when it comes to enforcement of

environmental laws for agriculture. USDA is perceived as pro-farmer and as preferring voluntary programs. EPA is thought to be pro-consumer and preferring command and control. There are indications, however, that USDA may be becoming a more conservation-focused department. In any case, additional regulation at the federal level probably needs to take into account the agency that will implement the regulatory or incentive program.

A growing literature discusses the efforts of the states to control pollution from animal agriculture. In recent years government has pursued an expansive effort to address agricultural non-point pollution, and in particular animal agriculture runoff. The main focus have been voluntary programs intended to assist farmers in protecting environmental resources while maintaining viable farm operations.

3. Liability Issues

There is a general sense that legal liability for environmental violations in agriculture are on the rise. Certainly the environmental problems associated with animal agriculture, especially concentrated livestock production, rise to a level that can trigger legal liability. Each of the commonly discussed environmental problems associated with animal agriculture—including odors from facilities or lagoons or fields, over application of manure, leaking lagoons and runoff—presents problems significant enough to allow courts to intervene. There is also no doubt that some neighbors are upset enough about some of the operations to pursue litigation.

Nuisance law, the main legal remedy in such cases, has been limited somewhat by various state Right-to-Farm laws. State governments have increasingly looked to alter legal liability rules for livestock waste. Three articles discussing right-to-farm laws are summarized at the end of this chapter (in the Additional Materials section).

4. Cost and Effect of Environmental Regulation

Research has begun to ask the question of what environmental regulation of animal agriculture actually costs. The literature survey cites several studies that reach conflicting conclusions.

5. Future Regulatory Efforts

Some economists are beginning to consider the appropriate level of subsidy needed to encourage farmers to adopt conservation practices, including manure management. These authors also argue that not enough is known regarding the proper amount of subsidy.

Economists are also attempting to analyze the relative costs of environmental regulation of animal agriculture. For maximum effect, according to one set of economic calculations, cost-sharing should target smaller and unregulated operations in vulnerable areas to maximize water quality improvements. Costs for manure management plans, for

example, may be significant for dairy and broiler producers. Problems will persist for producers who cannot afford to make necessary improvements in waste management technology or who produce too much waste to be handled on site.

Economists also tend to support flexibility in regulatory programs. They note, for example, that hog producers vary enough in their circumstances that a variety of policies aiming to affect waste management need to be considered.

Trade Policies

U.S. trade policy is designed to create a more favorable market for U.S. exports. Economists frequently argue that U.S. agriculture's fortunes depend on selling more products abroad. Certainly exports are important for animal agriculture. Meat exports increase significantly in the 1990s. By 1996 beef exports accounted for 7.4 percent of production, pork 5.6 percent, and poultry 16 percent.

Marketing and Demand Expansion Programs

Several USDA programs are designed to improve the producer's position in domestic and foreign markets. Four specific programs especially relevant to animal agriculture are:

1. Checkoff—Checkoff programs are designed to finance education, market development, advertising and research for a commodity.
2. Cooperatives—The central role of agricultural cooperatives in animal agriculture would not be possible without special provision in federal and state law that permit and favor these entities. Federal statute waives some aspects of antitrust law for these organizations and tax laws favor them.
3. Grading and reporting by USDA—The USDA does extensive grading and standards analysis for agricultural goods. It also provides extensive information about prices and marketing.
4. Marketing orders—USDA maintains a complex system of milk marketing orders. In addition, individual states sometimes make efforts to regulate the price of milk.

Food Safety

While a large number of food safety policies that affect animal agriculture could be discussed, two stand out for special attention. These are the regulation of biotechnology and the importance of meat inspection.

In general, the Food and Drug Administration regulate biotechnology applications to food production. Several studies, which describe the regulation of biotechnology generally, are cited in the Literature Summary. A considerable literature also discusses the regulation of bST milk and is cited.

Studies that discuss the requirements of USDA inspection for meat, poultry and eggs and other aspects of USDA regulation of food safety are cited.

Credit Programs

Credit is a crucial aspect in all of agriculture, including animal agriculture. The government is engaged in efforts to make sure that adequate credit is provided for

agriculture at a reasonable cost. Federal and other programs that aim to assist in lending are an important source of policy affecting the shape and character of animal agriculture. Two important sources are the Farm Credit System and USDA's Farm Service Agency (FSA).

Farm Credit System

FCS lenders are federally chartered banks and associations in the Farm Credit System, which make loans for agricultural purposes to eligible farmers, ranchers and cooperative associations. The FCS is granted significant advantages over other lenders in order to further lending to agriculture. FCS lending has been somewhat controversial because it is thought that FCS is tending to lend aggressively to larger hog operations in the Midwest.

Farm Service Agency Lending

The Farm Service Agency (FSA) is very active in making loans for family-sized farms. It is certain that there are many farmers—including those involved in animal agriculture—still in business because of these efforts. FSA makes both direct and guaranteed loans. These programs are targeted for family farmers and beginning farmers.

Disaster Assistance and Risk Management

Several federal programs are intended to assist farmers facing natural disaster and to manage the risk of low yields. Disaster payments generally are designed for crop farmers. A number of programs over the years, however, have provided some assistance to animal agriculture.

Tax Policy

Although typically not acknowledged as a farm policy, federal, local and state taxation policies and U.S. monetary policy have a direct effect on the shape of animal agriculture. Most literature on taxes and agriculture are practical guides for farmers and tax advisers. A significant body of evidence, however, suggests that tax policy affects the operation and organization of U.S. agriculture in significant ways. Investment credit, accelerated depreciation allowances, and interest deductibility provisions have promoted capitalization and high debt loads. Overall, tax policy seems to have encouraged farm expansion and the reduction in the number of farms.

Regulation of Conduct with Animals

State and federal statutes regulate some aspects of the way farmers and others can treat animals. Legally, of course, animals are considered property. A number of articles that discuss the provisions of state anti-cruelty laws and proposals to strengthen the provisions protecting animals from cruelty are cited.

Regulation of Contracts and Sales

Contracting is increasing dramatically. Several articles examine the reasons for the increase but do little to discuss policy implications of contracting. Contracts dominate meat production in the sectors of broilers, turkey and, to a certain extent, hogs.

Corporate Farming Laws

Several states have a form of anti-corporate farming law. This is usually done in an effort to protect the smaller, family farm. Two articles concerning corporate farming laws are discussed in the Additional Materials section at the end of this chapter.

Organic and Sustainable Production and Direct Marketing

Organic and sustainable production may become increasingly important for animal agriculture. Studies, beginning in the late 1970s, have argued that organic production can be competitive with conventional production.

A growing body of writing addresses the feasibility of an alternative, sustainable method of pork production. Policies that affect the prospects of organic and sustainable livestock production are likely to be important for an increasing number of poultry and livestock producers.

Question 2b: How, and to what extent do the government actions and policies catalogued in question 2a. affect animal agriculture relating to economics, profitability, size and location?

The results of the literature review in answer to all of the Role of Government questions on the effectiveness of policies and programs were small. The discussion below describes the articles that were reviewed.

Structural changes in the livestock industry, combined with highly publicized incidents of discharge from manure storage facilities into surface water are focusing attention on environmental and nuisance concerns arising from the concentrated production of livestock. Animal agriculture is industrializing, characterized by fewer farms with more animals per farm producing an increasing share of meat, milk and eggs for American and global consumers. This concentration of animals is perceived by much of the public to create greater pollution and nuisance risk. Many also feel that these negatives tend to increase as size and density of production units increase.

Concentration of animal agriculture has encouraged all levels of government to attempt to resolve concerns through public policy. Federal policy has come from the Environmental Protection Agency through the Clean Water Act (CWA) and National Pollutant Discharge Elimination System permits. The Coastal Zone Act Reauthorization Amendments focus on non-point discharges in 29 coastal and Great Lakes states, including Minnesota, and are more stringent than the CWA. The 1996 farm bill (called the Federal Agriculture Improvement and Reform Act) created an Environmental Quality Incentives Program where 50% of the funds are earmarked for manure management by livestock producers.

States have the authority to write and enforce policies more stringent than federal policy. The most common state policy has been the corporate farming laws and the right-to-farm laws. Corporate farming laws, which are anti-corporate farming in intent, attempt to protect small, mid-sized and family owned and operated farms.

Minnesota government has taken more aggressive action in attempting to reduce the negative impact of animal agriculture. The Minnesota Pollution Control Agency (MPCA) has the primary responsibility for the state's regulation of animal agriculture through a state permitting process. County government has entered into policy making in recent years by taking on the permitting process through delegation from the MPCA and by enacting local feedlot zoning ordinances. Counties have utilized zoning and feedlot ordinances in response to public concern. Also, as local township governments become unhappy with county control, some townships will develop ordinances and other policies as a means of controlling animal agriculture in their community.

As the role of regulation has moved to the most local governmental units, there is a perception that the level of conflict between livestock producers and their non-animal producing neighbors has increased. However, it is also likely that, concurrently, concentration and public awareness has increased and is contributing to the increased conflict.

The arguments for greater local control include greater familiarity with issues and situations, more citizen input, greater responsiveness, and shorter response times. The dangers are that local politics, individual biases, lack of skilled staff and reactionary citizen involvement can replace policy based on sounder fundamentals.

The opportunity for more local governments to capitalize on the potential strengths listed above is also potentially offset by the increased ability of strong interest groups (whether producer interest groups or anti-livestock citizen organizations) to apply political pressure in local political environments. Disputes tend to be more personal in the local setting and feedlot issues polarize numerous rural communities. The location where conflicts are resolved has in some instances moved to the courts.

How the role of government has affected the economics, profitability, size and location of animal agriculture is difficult to ascertain. Much of the research and writings are very recent and are based on opinions as well as sound data. Most literature is found in working papers within land-grant universities and in surveys of perceptions of impact.

Many factors influence hog industry location in the U.S. The industry is now less tied to natural resources and more mobile. There is anecdotal evidence to suggest that the stringency of state environmental regulations influence firms' location choices. However, two studies found that environmental regulations do not appear to influence location decisions.

Mo and Abdalla (1998) attempted to determine the effect of stringency of regulations on industry location choices. This study is reviewed in the Additional Materials section at the end of this chapter. Overall, the authors found that other factors had a greater influence on location choices.

Metcalf (1999) also examined the effect of increasing environmental regulation on the location of hog production in the U.S. The results suggest increased regulation has no

significant effect on the location of hog production. The amount of hog production occurring on small operations seems most responsive to differences in the traditional input and transportation costs, while production on larger operations is being drawn to states with existing transportation and agricultural infrastructure.

Three studies, which looked at state level legislation, were discussed in the literature summary. Leatham (1992) evaluated the impact that Texas water quality laws have on dairy profitability and survival. Results showed that representative 300- and 720-cow dairies will incur additional annual costs of \$60 and \$81 per cow, respectively. Compliance with water quality laws reduces net farm income by 27% and 63% for 720 cow dairies with low and high debt positions, respectively.

The State of Illinois approved the Livestock Management Facilities Act (LMFA) in May 1996. The LMFA provides an excellent case study in the regulation of large-scale swine production, in particular regulatory options available in the handling, storing and disposing of livestock waste. St. John (1996) analyzes key sections of the LMFA in the context of the larger debate concerning the appropriate type and degree of regulation necessary for such facilities. The paper concludes with the observation that the 1996 LMFA is ineffective in regulating the design, location, construction, and operation of large-scale swine production facilities in Illinois because the drafters of the bill were unable or unwilling to learn from the prior experience of other states in regulating such facilities.

Commenting on the same piece of legislation (LMFA), Goetsch and Beaver (1998) state that immediately after the Act was passed, interest groups continued to point out potential weaknesses in the new law, even before it could be completely implemented. The final result was an amendment to the LMFA which further expanded the state inspection requirements of new or proposed lagoons; added public informational meetings for proposed lagoons; and added setback distances for dead animal composting sites and several other requirements. The debate continues, according to Goetsch and Beaver, as to whether the amended Act adequately addresses all components of livestock production and livestock waste management.

Question 3: How are public funds for animal agriculture research, education and training currently allocated in Minnesota and how does the allocation of these funds impact the development of animal agriculture and Minnesota citizens as a whole?

To conduct the literature review, Question 3 was divided into two parts. Researchers on Question 3a searched for literature that documented how public funds for animal agriculture research, education, and training currently are allocated in Minnesota. For Question 3b, researchers focused on literature regarding the impact that the allocation of funds has on the development of animal agriculture and Minnesota citizens as a whole.

There are relatively few pieces of literature that address Questions 3a or 3b. In answer to Question 3a, the researchers did compile information about public funds for animal agriculture that are received by the University of Minnesota. Some information about

other federal funds allocated to research on animal agriculture in Minnesota has also been compiled. In answer to Question 3b, no literature that addressed the impact of the allocation of funds on Minnesota was found. There were some documents that addressed the impact of fund allocations at a national level.

The reader is referred to the Literature Summary for a description of the allocation of public funds for animal agriculture issues at the University of Minnesota and a summary of the impact of fund allocations at the national level.

Question 4: What are the implications of regulating animal agriculture at the township, county, state and federal level?

There is sparse literature available to answer the question of what are the implications of regulating animal agriculture at the township, county, state and federal level. A few studies by agricultural economists have approached the question on the periphery, but not directly. Other documents that were reviewed included opinion pieces on the effects of policies and the preferred manner for government to act.

This section first reports on documents that address the level of government at which the regulation of animal agriculture should occur. Then materials that address the question in Minnesota are discussed. This includes two reports on Minnesota county feedlot ordinances and an analysis by the Legislative Auditor focusing on the adequacy of the environmental regulation of feedlots by the MPCA. A discussion of the Legislative Auditor's study is found in the Additional Materials section, at the end of this chapter.

Innes (1999) conducted an informal review of policy efforts to regulate the environmental impacts of animal agriculture. In his conclusion, Innes suggests that taxing the external effect of animal agriculture so producers pay the environmental cost of their practices is simply not feasible. He states that tracing the environmental cost of nutrient pollution to individual livestock facilities is extremely difficult and imprecise. Rather, Innes says, government should focus on the relationship between producer choices and environmental outcomes, and more importantly focus on the choices that can be observed by the government at a reasonable cost.

The Center for the American Experiment created nineteen task forces to look at Minnesota state government and to make recommendations to the Governor and State Legislature for the 1999 session and beyond. The task forces made consensus recommendations based on the discussion and work of the task force members. The task force that focused on agriculture made the recommendation to "consolidate all agriculture regulatory functions under the jurisdiction of the Department of Agriculture." Currently, agricultural regulatory functions are housed under a variety of agencies and boards, including not only the Department of Agriculture but also the Board of Water and Soil Resources, Department of Natural Resources, the Minnesota Pollution Control Agency and others.

Johnson and Scott (1999) describe a modeling tool which can be used to provide policy decision support for state and local government officials, including input-output

modeling, cost-benefit analysis, and industrial targeting. In addition they describe a collaborative community policy analysis network that will eventually extend to selected rural communities in twenty-five states. The paper focuses on the specifications and development of the COMPAS econometric community models. The model could be used to study the impact local policy decisions on animal agricultural development.

In another study Sribastava and Batie (1999) looked at the Porter Hypothesis as a way of measuring the effect of public policy. The Porter Hypothesis relates the effects of environmental regulation on technological innovation and economic performance. Specifically, it asserts that innovation offsets can occur. These are a type of technological change that will “partially or more than fully offset the costs of complying with environmental regulation.”

If the Porter Hypothesis has validity in agriculture, the policy implications are important. If agri-environmental regulations are designed as performance standards, they may be more cost effective than other non-point pollution strategies; they may focus producer and contractor attention to search for innovation offsets, and they may induce innovation by redirecting research and development expenditures to cost minimizing pollution prevention technologies.

Local Feedlot Ordinances

Local governments in Minnesota have authority to enact zoning ordinances for regulation of animal feedlots. County and township interest in feedlot ordinances was stimulated at the beginning of this decade by the emergence of new facilities considered large by traditional standards. Fears of odors and to a lesser degree water quality risks, and concerns about ownership and community change encouraged controls.

The researchers for the Literature Summary were unable to find academic literature discussing the implications for local government. Informal, descriptive reports on efforts by two Minnesota counties were reviewed and are presented below.

In response to the changing feedlot industry in the early 1990s, Blue Earth County drafted a feedlot ordinance that requires all feedlots over 10 animal units to obtain a three-year county permit. Land use permits must be obtained by existing and new feedlots and they must be renewed after a site visit every three years. The County also has a delegation agreement with the MPCA to act for the state in issuing certificates of compliance for feedlots with up to 1000 animal units. The County has blended traditional county and state activities in their program.

According to Charles Peterson, Blue Earth County Feedlot Officer, in an unpublished paper (Peterson, 1998), the ordinance and permitting program have been successful. All existing and new feedlots in Blue Earth County have received site visits and inspections. Peterson observes that people’s fears that the “tough” regulations would destroy the well-established feedlot industry in the County and would send producers to neighboring counties with “looser” regulations have not come true.

Another example of local government response to animal feedlots is the work of the Lyon County Township Association. The report from their work describes the issues of importance and their perspective on local and state level controls. Seventy-two representatives of the Lyon County, Minnesota Township Association met in April 1998 and prioritized the topics they felt to be of greatest concern as the county developed a feedlot ordinance. The highest priority items selected (and listed in order) were:

1. Economic viability of livestock producers and general business and grain producers,
2. Groundwater pollution,
3. Absentee ownership,
4. Scientific based regulations,
5. Setbacks/health impact,
6. Air quality.
7. Impact on property values,
8. Agricultural preservation,
9. Appropriateness of township regulation,
10. Groundwater usage and Individual and corporations (tie)

Originally many felt that county authority to enact zoning ordinances applied only to land use provisions (such as setbacks/separation distances) and did not include environmental regulations (such as nutrient applications rates) which are addressed by the MPCA in its feedlot permitting process under Minnesota Rules, Chapter 7020. This view was based on the concept of preemption by the state of some local authority over animal agriculture because of the extensive state regulation of these facilities. Some county ordinances address a variety of feedlot issues including land use, water quality, and much less commonly, air quality.

Due to MPCA's role in regulating the environmental impacts of feedlots, the question of whether local governments can address environmental issues with their land use regulations, however, is open to significant question. In the *Crooks Township, Renville County v. ValAdCo.*, 504 N.W.2d267 (Minn.Ct.App 1993) case, the Minnesota Court of Appeals struck down a permitting system, applicable only to feedlots, that was very similar to the state's environmental permitting requirements. It is important to note that this decision came from the Minnesota Court of Appeals, not the Supreme Court, and that it involved a township, not a county.

The inclusion of environmental regulations in county feedlot zoning ordinances was challenged in the courts in the 1995 District Court case of *Blue Earth County Pork Producers, Inc. v. Blue Earth County*. The District Court judge ruled that the county could include manure management regulations in their feedlot ordinance. The fact that it involved a county rather than a township may or may not explain why the District Court reached a conclusion that on its face appears inconsistent with the holding of the Minnesota Court of Appeals in the Crooks Township case.

ADDITIONAL MATERIALS REVIEWED

In September 2000, EQB staff selected a number of articles to be examined in greater depth. Some of these articles were included in the bibliography for the Literature Summary completed in 1999. Other articles were not included in the Summary but appeared to be relevant to the subject. A total of 14 articles were reviewed in depth for this activity.

Regulation of Agriculture

Agriculture, broadly defined, is the country's largest industry and is a highly regulated industry. In a lengthy article, J. W. Looney traces the history of regulation of agriculture in the United States. (Looney, 1993) Regulatory policy has evolved from economic and business concerns of individual farm producers and consumers toward broader societal concerns such as farm structure, environmental issues, and trade policy. Closely related is the shift in emphasis from purely domestic policies to the global setting.

In 1933 the first Agricultural Adjustment Act was passed. This Act dealt with depressed market conditions in agriculture by calling for voluntary acreage reductions in return for payment of certain benefits to individual producers. Most of the agricultural legislation from the Depression years related to efforts to regulate surpluses in farming.

Regulation of the support system, generally called "agribusiness," comes from legislation passed before the 1930s. Most regulation to protect farmers and consumers who deal with the agribusiness firms was passed in the late part of the nineteenth century and early years of the twentieth.

The most pragmatic reasons for government regulation of the agricultural sector involve the fundamental need to protect national security and public health through the provision of a reliable supply of food and fiber. The most intensive regulatory programs in agriculture are those directed toward the agricultural marketing sector (such as Packer and Stockyard Act and the Perishable Agricultural Commodities Act)

The least pervasive area of agricultural regulation is at the farm level. With the exception of labor provisions (especially in OSHA) which directly affect some farming activities, and those of some environmental protection regulations (especially point source pollution from confinement livestock operations and pesticide restrictions), few regulatory programs are actually directed toward farming activities and operation. To a degree, there is regulatory activity from the application of price and income support programs that affect farm level decisions, but these programs are voluntary in nature.

The author foresees that farming regulation will shift to the structure of agriculture and the future of so-called "family farming". More on-farm regulation is likely with the concern for surface and groundwater pollution and farming practices (soil erosion, chemical and pesticide application). These changes coupled with new issues arising from the internationalization of agriculture, the application of new technologies to agricultural

production, and intensive production methods will lead to additional regulatory programs in agriculture.

In a 1989 article, Gerald Torres at the University of Minnesota School of Law wrote about some problems he anticipated at that time with the environmental regulation of agriculture. (Torres, 1989) Torres notes three issues that any environmental regulation of agriculture must deal with:

- The conflicting regulatory cultures of the Environmental Protection Agency (EPA) and the Department of Agriculture (USDA). The USDA uses mainly a voluntary approach to obtaining farmer compliance. It also has a policy of encouraging better husbandry rather than environmental protection. EPA, on the other hand, has relied heavily on command and control regulation for environmental protection. The author questions whether both agencies can reconcile their approaches to include elements of both voluntary and mandatory regulation.
- The heterogeneous nature of American agriculture. The confusion of “agriculture” which describes the industry, and “farming” and “agri-business” which describe the enterprises that make up the industry, have obscured issues and skewed policy debate. Whether agriculture as an industry ought to be made responsible for the environmental harms it causes is a fundamentally different issue than whether those regulations ought to be uniformly applied to the various enterprises that constitute the industry. Recognition of variety must form the core of a successful regulatory approach.
- The economic and cultural context of agricultural-environmental problems. Issues such as the inability of farmers to pass the costs of reducing pollution on to consumers or purchasers further down the production chain may make imposition of environmental regulations more difficult.

Jurisdictional Boundaries of Regulation

Abdalla and Becker examine the jurisdictional boundaries of governmental agencies that regulate agriculture in a 1998 article. Conventional wisdom suggests that local governments are closer to and are therefore more in tune with local conditions and citizen preferences. However, regulation at a higher level of government can help create a “level playing field” for competition among firms or to assure that everyone receives a certain minimum level of a public good or service.

Abdalla and Becker look at several case studies where animal agriculture issues were controversial and where the question of jurisdiction became a concern. They conclude that there are no clear-cut guidelines to identify which level of government is best equipped to deal with these conflicts. Rather, the level of government that has the political support to do so should take action. (Abdalla, 1998)

In another study that looks at jurisdictional boundaries, Theresa Heil points out that smaller livestock facilities (those under the NPDES levels) and various types of

agricultural sources of pollution, such as discharges from agricultural storm water runoff, are not regulated by the federal government. While Congress felt that non-point source pollution could best be addressed at the state level, there are problems at that level too.

Heil notes, as Torres does, that farmers often cannot easily pass the expenses of non-point source pollution reduction on to their customers. Also, the effects of the non-point source pollution are often felt most heavily downstream from the source, reducing the pressure on local governments to establish and implement non-point source control initiatives.

Knowing this, the Wisconsin legislature developed a statewide initiative for agricultural pollution control. However, even that has proved ineffective in some cases, Heil states. Non-point source regulations, to be effective, must be implemented at the local level via local agencies with incentives for farmers in the form of financial assistance.

A study discussed below, Mo and Abdalla (1998) found that the capability of local governments to regulate the swine industry through local zoning ordinances appears to have impacted the growth of the hog industry. This result supports the argument that in states where local governments have legal authority to regulate the hog industry, the regulatory environment is less uniform and perhaps unstable. They note the heated debate among state lawmakers over local control issues in North Carolina and Iowa. The authors are unable to reach a conclusion about the level of impact local control may have.

Impact of Regulations

A paper by Mo and Abdalla summarizes a research project that investigated the relationship between the stringency of state environmental regulations and swine industry expansion over the 1988-1995 period. Agriculture has traditionally been classified as a material-oriented industry, in that it was bound to the location of the basic natural resources, such as land or feed. Technological and institutional innovation in the livestock industry have changed this view of agriculture as material-dependent. Therefore, other factors may influence location decisions of these facilities.

Despite the “conventional wisdom” that assumes a linkage between state environmental policies and firm location decisions, most empirical studies to date have found only weak and insignificant effects for manufacturing as a whole. This study also found overall that the stringency of environmental regulations did not appear to impact hog inventory growth.

One explanation for the insignificance of the states’ environmental laws regulating livestock industry is that the states’ laws “on paper” did not differ significantly. More differences in states’ regulatory programs can be found in their enforcement efforts, which possibly impacted the growth rate of the swine industry across states. One of the two variables measuring states’ enforcement efforts—amount of fines per violation—was significant and had the expected negative sign. However, the number of staff devoted to animal waste management had an unexpected positive sign. (Mo and Abdalla, 1998)

Their analysis also found other factors which influence the recent growth of hog production in the U.S. including:

- Drier states are likely to see growth in their swine sectors. This may be due to decreased costs due to manure management in dryer environments.
- States with larger swine facilities are likely to see growth in those industries. The larger facilities benefit from economies of scale and may have advantages in terms of manure management and ability to meet state environmental rules.
- States with more rural people are more likely to see growth in swine production. This prediction is based on the belief that such states are more likely than more urban states to have a positive business climate for hog production.
- States in which local governments have less authority in regulating livestock operations are more likely to see growth in their swine sectors.
- States that are more lenient to violators of environmental laws are more likely to see a growth in swine production. (Mo and Abdalla, 1998)

An article by John Burns (1996) discusses the new regulations in North Carolina. In the summer of 1995, North Carolina experienced a devastating series of massive spills of hog waste. Environmentally sensitive estuarine rivers suffered record fish kills. The spills occurred because heavy rains, an exploding livestock population and antiquated regulations combined to produce an environmental disaster.

The hog industry has grown tremendously in North Carolina. Hog production has become the state's top farming industry, replacing tobacco. The sheer size of the waste problem presented by the hog increase is huge: hog waste is over twice as rich in nutrients as human waste, and each one of the 8.3 million hogs produces four times the volume of solid waste produced by a human. By those numbers, eastern North Carolina produces a daily sewage volume roughly equal to that of the entire human population of California. (Burns, 1996)

Burns attributes the problem in part to the way the existing regulations were applied. Operations that met the size requirements to be classified as a CAFO but discharge wastes only in the event of a 25-year 24-hour storm were not required to obtain a NPDES permit. Burns states that by adhering strictly to this definition, the state failed to provide protection to its rivers and estuaries. At the time this article was written, North Carolina's legislation revising its program had not yet passed. But Burns anticipated that Senate Bill 1217 which strengthens the state's permitting process and requires the farms to first prove themselves safe, before they are permitted, would be a tremendous improvement.

Command and Control Vs Self Control Regulations

In a 1998 article, Rena Steinzor contrasts the traditional command and control method of environmental regulation on the federal level with the newer methods to "reinvent" the way industrial practices are controlled. Command and control rules impose detailed, legally enforceable limits, conditions, and affirmative requirements on industrial operations, generally controlling sources that generate pollution on an individual basis.

The most prominent alternative to command and control is industry "self regulation". Self-regulation gives industry the opportunity to gain exemptions from specific command and control requirements by proposing different methods for achieving underlying environmental goals. Government typically specifies broad performance standards but leaves the means of achieving those standards up to the regulated entity. (Steinzor, 1998)

Steinzor describes command and control regulations as having several fundamental problems. In order to protect human health and the environment, levels of exposure that are safe must be determined. This "health based standard" type of regulation is ideal but not often achievable because there are significant gaps in our scientific knowledge. This lack of crucial information has forced Congress and EPA to settle for requirements based on a very different premise: polluters are required to install the best available control technologies on the theory that as much as possible should be done to reduce levels of harmful pollutants. The sheer volume of the regulations makes them difficult to enforce and encourages scofflaws and discourages regulators.

Steinzor examines Project XL (standing for excellence and leadership), a program launched by the EPA in 1995. The premise of XL is that companies should be allowed to develop their own site-specific plans for environmental protection in exchange for exemption from existing and future command and control regulations. However, the program has proved to be a disappointment so far and Steinzor evaluates why this has occurred. Among the problems are Project XL's uncertain legal status, the complexity of the program and a lack of sufficient incentives for business participation.

A second article, by Keohane, Revesz, and Stavins examines the command and control regulations vs. market based instruments (such as pollution taxes and systems of tradable permits). The authors analyze why command and control regulations are used far more often even though market based instruments are consistently endorsed by economists.

Although it would appear that most firms would prefer market-based instruments, the authors argue that they may not really prefer them. Certain type of regulations can actually augment firms' profits through the generation of rents and the erection of entry barriers. If an environmental regulation reduces total production and therefore raises prices, the new price will be above average cost for all firms. The firms thus earn "rent", which is the difference between the price they received for their product and their cost of production. If the regulations are also stricter for new firms (and provide "grandfathering" for existing firms), the existing firms continue to earn rent into the future. (Keohane, 1998)

Legislatures also have a number of reasons to prefer command and control. Training and experience may make them more comfortable with that approach, opportunities may be lost while market based programs are developed, there is a greater degree of control with command and control standards, and there is a tendency to stay with the status quo.

The authors suggest that the aggregate demand for a market-based instrument is likely to be greatest when the environmental problem has not previously been regulated. The

prospects may be promising for market-based instruments for new problems, such as global climate change, rather than for existing regulated problems, such as abandoned hazardous waste sites.

Right-to-Farm

Three articles discussed the issue of nuisance and right-to-farm laws. Nuisance as a legal doctrine means an unreasonable and substantial interference with a person's quiet enjoyment of his property. Livestock production generally involves the storage and disposal of large quantities of animal manure with associated odors, insects, and other problems. Because of this, many livestock producers are the targets of nuisance actions.

In a 1988 article, Hamilton and Bolte note that every state, except, at that time, South Dakota, had enacted right-to-farm laws. Most right-to-farm statutes are written to prevent a situation from arising where a person is farming and then people later move onto adjacent property (such as a new housing development on the edge of town) and bring a nuisance action against the farmer.

Hamilton and Bolte look at the 49 states with right-to-farm laws in 1988. In Minnesota, they note, the state adopted a right-to-farm statute that provides public and private nuisance suit protection to agricultural facilities including those facilities for the production of "livestock, poultry, dairy products, or poultry products." Protection does not apply in cases of negligent or improper conduct, injury or threat of injury to health, pollution of the waters of the state, and animal feedlots with a swine capacity of 1,000 units or cattle capacity of 2,500 animals.

In a later article (1998), Neil Hamilton reconsiders right-to-farm laws and raises questions why they may be ineffective. He notes that states have, in some cases, increased the protections to farms. However, this has put these laws into the middle of the debate surrounding the increasing industrialization and scale of swine production.

Hamilton states that the great majority of court cases interpreting right-to-farm laws have resulted in rulings in which the laws ultimately did not effectively protect the farm operation. He feels that some states, such as Iowa, have made protection too widely available by expanding protection to farms that aren't preexisting.

Right-to-farm laws may also encourage greater regulation of farming operations in an attempt to reduce the conflicts with neighbors. The laws do not always address an essentially rural vs. urban land use conflict. Rural neighbors who oppose the expansion of large-scale facilities argue that existing right-to-farm laws unfairly favor the owners and operators of swine facilities at the expense of long-time residents.

Finally, he states that right-to-farm laws do little good if they are not accompanied by effective land-use planning efforts that try to limit the ability of non-farm users to intrude into agricultural areas. Similarly, a right-to-farm law by itself will not keep a farm economically viable if the critical mass of other farms and related agricultural services are lacking or if a near-by market for the products is nonexistent. (Hamilton, 1998)

A third article by Richardson and Feitshans (2000) provides two examples of recent problems with right-to-farm laws. Two recent cases have drawn attention. Both cases found the right-to-farm laws in question constituted a legislatively imposed easement across the property of affected landowners. One court went on to state that this imposition constituted a “physical invasion” of the affected property owner’s land, and thus a categorical taking of private property for public purposes without just compensation. (Richardson, 2000)

Corporate Farming

Two additional articles that were reviewed at the request of EQB staff concerned the issue of corporate farming.

In a 1997 article, Neil Hamilton discussed a number of statutory or judicial questions raised by industrialization. The most directly identifiable legal impact of industrialization is the increased use of contracts to control production and marketing of commodities. Minnesota is a leader in adopting laws and regulations to promote fairness in agricultural production contracts and he thinks that other states will no doubt be asked to consider similar laws.

Contract methods may result in a fundamental shift in the nature of the farmer’s work. Instead of being independent businesses, farmers may come to resemble wage employees, only paid on piecework rather than hourly basis, without the protection of workers compensation or other employee benefits commonly required in other industries. Will industrialization change the relation between producers and the land; will the land be viewed as only a production factory for maximizing yield, rather than as a long-term resource to protect? And should command and control style of environmental regulation used for other industry be used for agriculture?

He notes that nine mid-western states have some form of law limiting corporate farming. But proponents of expanding industrialization are pressing for reform of the laws. Several states, including Kansas, Missouri, and Oklahoma, have modified their laws to become more attractive for integrated livestock production. The existence of these laws adds interstate competition to the debate regarding corporate farming in the livestock sector. (Hamilton, 1997)

In a 1996 article, Jan Stout discusses the battle over Missouri’s anti-corporate farming act. She notes that the act’s intended purpose is to prohibit large farm corporations from owning farmland or engaging in farm related activities within the state in order to protect the family farmer from unfair competition. Two major exemptions in the Act, however, have allowed large farm corporations involved in hog production to settle in the state. These hog production corporations gained entrance to Missouri under two exemptions meant to assist the family farmer; namely, the family farm corporation exemption and the authorized farm corporation exemption.

The subsequent corporate farm development has left Missouri in what may be an enviable, though conflicted, position. Family farmers still enjoy insulation from an unlimited onslaught of farm corporations, while the state reaps the benefits of entities falling within the Act's exceptions. Additionally, dealing with a limited number of large corporations allows the state to adapt to problems and consider possible advantages on a more manageable scale. While the introduction of these corporate entities may serve to frustrate the initial statutory purpose of the Act, their accompanying benefits force a review of the statute's validity and reexamination of Missouri's future agricultural course. (Stout, 1996)

Evaluation of Minnesota's Animal Feedlot Regulations

In April 1998, the Legislative Auditor was directed to evaluate the environmental regulation of feedlots by the Minnesota Pollution Control Agency and the counties participating in MPCA's feedlot program.

The study found the MPCA's feedlot program has several strengths, including the design standards applied to new or expanded feedlots, the monitoring of water quality at certain large feedlots, and the relatively new monitoring of air quality.

However, the program also has numerous weaknesses. These weaknesses include a lack of timeliness in reviewing and approving permit applications, insufficient review of some permit applications, limited follow-up on expired interim permits, insufficient resources devoted to visiting sites prior to permit approval or during construction, insufficient oversight of feedlots once they are in operation except in response to complaints, poor tracking of staff responses to citizen complaints, a weak but improving enforcement program, little or no meaningful oversight of delegated county feedlot programs, and the failure to update rules since the late 1970s.

The study also indicated a wide variation in the quality and comprehensiveness of county feedlot programs. Some county programs are excellent, while others are inadequate. Counties can be valuable partners for the MPCA feedlot program, but the agency needs to provide clear program expectations for counties and perform better oversight of county feedlot programs.

The study listed numerous specific observations and recommendations related to the MPCA feedlot program. These are divided into six categories: permitting, environmental review, oversight, county feedlot programs, feedlot rules, and MPCA resources. Following is a summary of the observations and recommendations identified in the study in each of the six categories.

Permitting

Most of the permits that MPCA issues are either "interim permits" or "Certificates of Compliance." An interim permit is issued for new construction or for a feedlot that poses a potential pollution hazard to the environment. A certificate of compliance has no expiration date and indicates that a feedlot meets agency standards. MPCA also issues

NPDES permits to certain large feedlots (over 1,000 animal units) that have the potential to discharge to waters of the state. The study found:

- MPCA has adequate design standards for structures that store manure.
- MPCA staff review permit applications and document their review in an inconsistent manner.
- Manure management information currently required by MPCA is inadequate.
- MPCA permitting staff does not normally conduct a site visit when they review a permit application or when a facility is being constructed.
- The main cause of delay in issuing permits was the backlog of permits at MPCA.
- MPCA does not adequately follow up on expired interim permits.

The authors recommended:

- MPCA should conduct more site visits prior to issuing feedlot permits, particularly for feedlots in environmentally sensitive areas.
- MPCA should conduct more site visits of feedlots during and after construction work, particularly when the feedlot is in an environmentally sensitive location or the construction involves contractors or engineers that MPCA is unfamiliar with or has had problems with on previous feedlot projects.
- MPCA should strive to provide a thorough review of all permit applications and ensure that required documents are filed with the agency in a timely manner.
- MPCA should develop a tracking system to make sure that feedlot owners follow through on permit requirements and should notify feedlot owners with expired interim permits.
- MPCA should track the timeliness of its performance in issuing feedlot permits and strive to reduce its permitting backlog.

Environmental Review

Another function performed by MPCA and sometimes by counties is the environmental review of certain proposed feedlots. An environmental assessment worksheet (EAW) must be prepared for any proposed new or total confinement feedlot with a capacity of 2,000 or more animal units or an expansion of an existing total confinement feedlot resulting in an increase in capacity of 2,000 or more animal units. For partial confinement facilities an increase in capacity of 1,000 or more animal units requires an EAW. MPCA or a county may also require an EAW for a feedlot project of any size, based on the location, nature, or potential environmental effects of the operation.

The study found that overall the MPCA has improved its environmental review of feedlot projects. The improvement occurred as MPCA has become more knowledgeable about hydrogen sulfide and ammonia emissions from feedlots. As a result, the agency has been able to more effectively respond to citizen concerns about odors.

The study found that the environmental review process has been useful in providing citizen input into MPCA's permitting and regulatory practices. This has resulted in the MPCA imposing special permit conditions on particular feedlots when citizens demonstrated such a need, and has helped bring about changes in the way MPCA handles permits for other facilities.

The study expresses concern for proposed EQB rule regarding the requirements for environmental review for feedlots. The authors felt that the rule changes would increase MPCA's environmental review workload and would require the agency to shift resources away from the other regulatory functions of the agency. The study urged the Legislature to review the need for and potential cost of the EQB's proposed rule change. As we note in Chapter 5, to date the EQB's rule changes have not increased the MPCA's work load.

Oversight

In addition to issuing feedlot permits, there is also a need for MPCA to provide ongoing oversight of permitted feedlots and scrutiny of unpermitted feedlots. A detailed feedlot inventory could help identify facilities needing a feedlot permit, as well as facilities that are a potential pollution hazard. A regulatory agency should periodically inspect all permitted feedlot facilities on an ongoing basis to ensure that facilities are being operated in accordance with permits and that pollution problems are not occurring. The MPCA has no way to track when feedlots are closed and has insufficient staff resource to check on whether closed feedlots are cleaned up in a timely manner.

Additionally the study found:

- MPCA has taken several significant enforcement actions that have resulted in penalizing feedlot owners and correcting conditions and practices that posed a threat to water quality, but,
- MPCA takes a long time to complete enforcement actions, and some uncooperative feedlot owners have been able to avoid enforcement for several years.
- MPCA has developed a good initial program to respond to citizen complaints about feedlot odors.

The study recommended:

- The Legislature should carefully consider the need for additional county feedlot inventories along with the budget request it will receive for the Generic Environmental Impact Statement on Animal Agriculture.
- MPCA should require its staff to record all complaints received about feedlots and briefly document how each complaint was resolved.
- MPCA should require regular status reports from investigators to ensure that progress is being made on water quality enforcement cases.
- MPCA should assign more staff to water quality enforcement activities in order to reduce the backlog and speed up resolution of cases.
- MPCA should ensure that regional offices are consistent in their willingness to investigate potential water quality violations.

County Feedlot Programs

MPCA's feedlot program depends on delegated counties to issue permits, oversee feedlot operations, and minimize environmental pollution from feedlots. Ideally, a good county feedlot program should have an inventory of feedlots in the county, know which feedlots pose environmental problems, and have a plan to address the pollution problems.

County programs vary considerably in the degree to which they are funded and have the desired regulatory practices in place. Counties also vary in the type and extent of environmental risks that result from their geographical and geological features.

There are 47 counties with designated county feedlot programs under the MPCA feedlot program. Some county programs are less than adequate and some are exemplary and more advanced than MPCA's own regulatory efforts.

The authors found:

- Counties vary considerably in the amount of resources they devote to feedlot regulation. Only part of this variation is due to county differences in the number of feedlots.
- Counties vary considerably in the level of feedlot inventory they have completed.
- There are wide differences among delegated counties in the extent to which they visit proposed new feedlots, existing feedlots, or abandoned feedlots.
- MPCA has provided little oversight of county feedlot programs, although it has recently made efforts to require delegated counties to meet some minimal requirements as a condition of remaining in the feedlot program.

The study recommended:

- MPCA should provide more effective oversight of county feedlot programs. The agency should establish expectations and standards for county feedlot programs and ensure that counties are meeting their financial obligations set forth in law.
- MPCA should attempt to ensure that county feedlot officers receive adequate training.
- MPCA should encourage and the Legislature should support the participation of additional counties in the feedlot program.

Feedlot Rules

The study found that MPCA's administrative rules for feedlots are outdated. The MPCA began working on new rules in 1995 but the authors felt that it was unlikely that the agency would meet the legislative deadline to complete the rulemaking process. The authors expressed some general concerns about the draft rules.

MPCA Resources

The study noted that MPCA has not had enough staff working on feedlot regulations and thus the agency has been unable to keep up with its workload or to sufficiently review permits. The authors also felt that with most of the MPCA feedlot staff located in St. Paul, it is difficult for the agency to visit the sites of feedlots.

They recommended that the MPCA could implement some of the recommendations of the study by using existing resources. Such things as improving review of permit applications, tracking projects and managing enforcement cases could be done with available resources. However, the agency and counties will need some additional resources to address certain problems in feedlot regulation such as monitoring the closure of feedlots and conducting periodic inspections of operating feedlots.

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Chapter 2

IMPACT OF GRANT, LOAN AND TAX PROGRAMS ON ANIMAL AGRICULTURE

Assessment of Grant and Loan Programs

Introduction

A handful of grant and loan programs are available to help pay for measures needed to reduce pollution from animal agriculture. The Minnesota Department of Agriculture recently completed a legislatively required report that, among other things, summarized the environmental grant and loan programs providing assistance to feedlots. According to this report, the average annual amount of grant money available to address environmental problems from feedlots is approximately \$4.9 million, and the average amount of loans is approximately \$3.15 million.¹ Tables 1 and 2 below list the programs included in the MDA's report, hereafter referred to as the "MDA Needs Assessment."

As these tables show, there are three programs in particular that provide the bulk of the funding and that fund the most projects. These are: (1) Agriculture Best Management Practices ("AgBMP") Loan Program (run by the Minnesota Department of Agriculture); (2) the state Cost-Share program (run by the Board of Soil and Water Resources, or BWSR); and (3) the federal Environmental Quality Incentive Program ("EQIP," run by the USDA Natural Resources Conservation Service, or NRCS). The goals, types of projects funded and administrative practices of these three programs are described in detail in Part II below. The MPCA Clean Water Partnership and Section 319, included in the MDA Needs Assessment and the tables below, are also described briefly in this work paper at Part II.E.1, as are the Sustainable Agriculture Grant and Loan Programs and the federal Small Watershed Program which are not part of the MDA Needs Assessment. (The Ag Improvement Loan Program and the BWSR Local Water Planning program are listed in the tables below because they were part of the MDA Needs Assessment, but they are not described in any additional detail in this work paper.)

Table 1: Loan Programs	Recent Average Annual Amount Spent on Feedlots	Typical # Funded/Yr
AgBMP Loan Program (MDA)	\$ 2,600,000	130
Clean Water Partnership Program (MPCA)	\$ 500,000	25
Ag Improvement Loan Program (MDA)	\$ 50,000	2
Total	\$ 3,150,000	157

Source: derived from Feedlot Financial Needs Assessment Report, Feb. 1, 2001, Table 14.

Table 2: Grant Programs	Recent Average Annual Amount Spent on Feedlots	Typical # Funded/Yr
Cost Share Program (BWSR) (includes Feedlot Water Quality Management grants)	\$ 2,000,000	95
Environmental Quality Incentive Program (NRCS)	\$ 2,000,000	170
Clean Water Partnership Grant Program (MPCA)	\$ 280,000	6
Section 319 NonPoint Source Grant Program (MPCA)	\$ 322,000	11
Local Water Planning (BWSR)	\$ 300,000	15
Total	\$ 4,902,000	297

Source: Feedlot Financial Needs Assessment Report, Feb. 1, 2001, derived from Table 13.

Major Funding Shortfall

Legislation adopted during the 2000 session explicitly linked the ability of the MPCA to enforce its feedlot rules at the smaller feedlots (those below 500 AU) to the availability of cost-share funding, making the issue of financial assistance to feedlot operators more important than ever. Lacking evidence of an immediate public health threat, the MPCA may not require operators of feedlots under 300 AU to spend more than \$3000 without 75% cost-share, and feedlots under 500 AU cannot be required to spend more than \$10,000 without cost-share of 75% of the upgrade, or \$50,000, whichever is less.² The law also imposed a moratorium on requiring operators of feedlots under 100 AU from upgrading without 75% cost-share, regardless of the expense.³ The legislature simultaneously required the Minnesota Department of Agriculture to report back to it on the need for state financial assistance by feedlot operators.⁴ In its report, the MDA considers all state and federal grant programs to be "cost share" programs, not just the state grant program administered by BWSR under the name "Cost Share."

The MDA Needs Assessment concludes that an additional \$73 million in cost-share funding would be needed over the next ten years, or \$7.3 million per year, just to cover the estimated construction costs associated with basins and runoff controls.⁵ The MDA calculates this shortfall by first assuming that \$165 million is needed for construction expenditures to achieve compliance with the MPCA rules. (The figure covers costs at feedlots greater than 500 AU as well as the smaller ones that are covered by the legislative restriction, but all but \$9 million of the \$165 million is expected to be incurred at facilities below 500 AU.) Covering 75% of these costs would take \$122 million in grants over ten years. After subtracting the \$50 million in existing grant programs, the report reaches the shortfall in grant funding of \$73 million.

However, the MDA report illustrates another point worth stressing: *existing cost-share programs do not cover all the costs related to upgrading a feedlot to reach compliance with the new rule.* In addition to the \$165 million, the report estimates that the feedlot rule will require substantial investments over the next ten years on three things not covered by the existing state and federal cost-share programs: engineering assistance (\$25 million), manure management planning and updates (\$10 million), and manure handling and application equipment costs (\$38 million). As it happens, these costs also amount to \$73 million, meaning that if we consider not just construction costs but also these three non-construction costs, the cost-share shortfall identified above doubles to \$146 million. Moreover, this figure does not include other, potentially expensive compliance-related costs like feedlot closure and the resolution of air quality concerns, which the MDA did not attempt to estimate.⁶ It is unclear how the 2000 legislation prohibiting the MPCA from requiring costly upgrades would apply in these circumstances. Arguably, it could be read to apply only to those costs that are of the sort covered by existing cost-share programs. The law does not make any such distinction on its face, but the alternative reading approaches the absurd by requiring the impossible: namely, prohibiting the MPCA from enforcing many portions of its rule unless cost-share money is available when, in fact, no program provides any sort of cost-share money for those expenses.

In short, even if it is the legislature's goal to provide 75% cost-share funding only for substantial construction expenses at smaller feedlots, the state appears to be about \$7.3 million per year short of meeting this goal (or slightly less than that if we subtract the expenses incurred at facilities above 500 AU). However, the shortfall at least doubles when we consider the other upgrade-related costs. By failing to distinguish between the kind of costs typically eligible for cost-share and other kinds of costs, the 2000 legislation either fails to provide all the relief to farmers that it appears to promise, or makes it impossible for the MPCA to enforce some important provisions of its rule at any feedlot below 500 AU.

Focus of Grant and Loan Programs

Virtually all of the money available as environmental grants to feedlots is provided to address concerns over surface water. (The focus of the AgBMP loan program has already been somewhat broadened to reflect air concerns, as discussed below). Surface water problems motivated the creation of the funding mechanisms, surface water concerns drive the allocation of the funding, and surface water concerns are the main focus of the offices that implement the aid programs. This is not surprising. The runoff of animal waste into surface waters was the first environmental problem related to animal agriculture to draw the attention of communities and regulators. Also, the erosion of soils and nutrients from farmlands has been of great and understandable concern since the dust bowl era. Regulatory structures, and large pools of money, have been built up over the decades to address erosion and surface water concerns. Air pollution and groundwater pollution associated with animal agriculture are much more recent and often less obvious issues (even though air issues are the cause of extreme controversy in some rural areas). Air pollution problems, worsened by the rise of larger feedlots, are difficult to measure, difficult to trace in areas with many feedlots, and difficult to remedy. Groundwater

problems are slow to emerge, hard to detect, and can similarly be hard to trace and resolve. These may be among the reasons why there are as yet no corollary aid programs set up to address air and groundwater concerns.

The fact that an institutional infrastructure has risen up to respond to surface water threats from feedlots is by no means a bad thing, given the clear need to address surface water problems. However, the fact that the funding is virtually all driven by surface water protection – and administered by offices that are keenly aware of surface water issues but less aware of other environmental issues -- raises two concerns.

First, it means that funding is simply not available to address air quality problems and would be difficult to obtain simply to address groundwater problems that do not have a surface water component. While there is not at this time much demand for funding to address groundwater problems (and may not be if basins prove to be sufficiently protective), there is a demand for aid to help address air quality and odor concerns. The increased regulatory and public attention that air problems are attracting means that demand is likely to grow. While many of the odor and air quality controversies surround facilities too large to qualify for cost share in any event, these issues also arise at smaller, cost-share eligible facilities, particularly where residential areas are encroaching into traditional farming areas.

Second, the focus on surface water means that the farming methods farmers are being subsidized to adopt may protect surface water but may not protect air and groundwater, and could actually harm them. The assumption among many regulators and administrators of aid programs is that all animal agriculture is moving toward confinement facilities in which waste is concentrated into basins for months of storage. Critics of this approach point out that while basins prevent manure runoff from ending up in streams and lakes, it can pose a greater risk to groundwater by concentrating the waste, and it raises air quality and odor problems to a new level.

Clearly, there are factors other than government action driving the concentration of feedlots and the use of basins, but the fact that money is available to help farmers follow this path is probably a factor. If all the environmental concerns (and social concerns as well) were taken into consideration at the same time, different choices might be made, such as adopting sustainable agricultural practices that do not rely on the concentration of waste. Of course, it is possible that farms would still continue along the path of greater concentration, and this may even prove to be the most environmentally beneficial (for example, the use of manure digesters depends on concentrated amounts of manure). Still, if farmers were thinking beyond just surface water issues from the beginning, they could then incorporate the other concerns into their design in a way that would cost less to them and to the taxpayer than addressing the issues sequentially.

The farmers and taxpayers of the state are poised to spend over \$165 million on environmental remedies at feedlots over the next ten years. Because of the relatively narrow institutional and legal focus of the existing aid programs, we cannot be confident that this money is being spent in the most environmentally beneficial and efficient way.

Recommendations

Provide More Grant Funding and/or Change the 2000 Legislation.

If the 2000 legislation prohibiting the MPCA from enforcing its rules stands as is, the legislature should provide additional funding to make the required levels of cost-share possible. This would apparently require providing the additional \$7.3 million/yr identified in the MDA report, and additional sums to cover expenses not typically covered by the existing grant programs. (Of course, these costs could be very different if enough farmers adopt methods that do not depend on the construction of basins.) The legislature would also need to ensure that the Cost Share Program is expanded to cover all expenses covered by the term “upgrade.” Alternatively, the language adopted in the 2000 legislation should be altered to explicitly match the funding that is actually available – keeping in mind both the levels of funding available and the types of projects eligible.

Broaden the scope of the Cost-Share program and BWSR’s mandate.

As is discussed below, the state Cost-Share program administered by BWSR (including the Feedlot Water Quality Management grants) is the only cost-share program wholly funded by state money and governed by state law, and therefore the logical place to address the problems described above. The legislature should expand the scope of this program to ensure that air and groundwater protection measures can be funded, and that measures to protect surface water consider other impacts. This would broaden the program’s legal focus. The legislature should also consider whether it is necessary to broaden the legal and institutional focus of BWSR itself, such as by expanding its mandate, requiring additional staff or staff training in environmental issues beyond soil and surface water, or establishing advisory bodies with broader expertise.

Other recommendations related to the larger question of how Minnesota can make sure that the agricultural practices it subsidizes are those that will best meet the state’s environmental needs are addressed in the recommendations presented under Chapter 4 of this work paper.

Broaden the Authority of the AgBMP Program.

The legislature has provided funds for the AgBMP Program to lend out for projects related to air quality, however it has not expanded the authority of the AgBMP program to reflect this broader mandate. This should be remedied by amending the enabling legislation of the AgBMP program to explicitly allow it to address issues beyond water quality. (The Department of Agriculture is already requesting this change be made in the 2001 session.)

Work with NRCS to Expand EQIP’s Focus

The state should work with the NRCS to identify ways that air and groundwater concerns can be better reflected in its funding priorities. This may mean, for example, expanding the list of approved practices to include practices that can help reduce air pollution and odor.

Expand Funding for Sustainable Agriculture Grants and Loans and Provide Technical Assistance in Sustainable Agriculture Methods

The Minnesota Department of Agriculture has a Sustainable Agriculture Program that provides grants and loans to farmers, including those in animal agriculture, described below. In comparison to its other aid programs, this funding is minimal and should be expanded to better reflect the need to identify and develop sustainable farming methods. Also, as we discuss in greater detail in Chapter 4, the lack of technical assistance in sustainable agriculture methods is a bottleneck to their adoption. BWSR and EQIP both provide technical assistance to farmers looking for ways to remedy environmental problems; this is largely engineering assistance to those installing basins, runoff controls, etc. The shortage of technical assistance in sustainable agricultural methods that do not require basins raises the concern that some farmers who would otherwise find it wise to adopt less concentrated farming methods cannot do so simply because they do not have the necessary training or information.

GRANT AND LOAN PROGRAMS

For purposes of assessing the scope of the programs described below, it is useful to keep in mind some of the numerical assumptions made in the MDA Needs Assessment. Based on a survey of County Feedlot Officers and Soil and Water Conservation District Managers, it assumes that 7100 Minnesota feedlots will require environmental upgrades in the next ten years. Of these, 3200 are assumed to need only minor corrections costing less than \$3000 on average. The remaining 3900 feedlots are assumed to need major upgrades costing \$40,000 on average.

State Agriculture Best Management Practices Loan Program (AgBMP)

Funding Sources and Goals

The AgBMP program is a result of the increased attention that began to be paid to non-point sources of water pollution in the 1980s and 1990s. A major Clean Water Act loan program that had initially been only for the construction of publicly owned treatment works was expanded to address non-point water pollution sources as well. This program, administered by the EPA, provides capitalization grants to states. The grants go into a State Revolving Fund (SRF), along with a 20% state-funding match. The funds are ultimately to be distributed as no- or low-interest loans to eligible projects.⁷

In 1994 Minnesota laws were amended to allow the state to take advantage of this change, by, among other things, establishing the AgBMP Program.⁸ The program uses funding from the SRF to make loans to local units of government, who in turn provide loans mainly to farmers to pay for the implementation of agricultural best management practices on their property. Best management practices are defined as those that best reduce water pollution from nonpoint sources.⁹ Eligibility for funding under this program depends on certification by the local unit of government that the project meets priority needs of the local comprehensive water management plan.¹⁰ The program provides zero-interest loans to local governments, and they in turn provide low-interest loans to farmers.

Funding for the AgBMP program has been quite unstable over the years. Because the program is competing with public treatment works for money from the SRF, and because demand from communities for those facilities has varied greatly in recent years, the amount left over for the AgBMP has correspondingly varied. In 1995 and 1996, AgBMP received a full \$10,000,000 per year from the SRF, then received only \$7,159,494 in 1997. In 1998 the program received no funding at all from the SRF, but the legislature compensated with a \$9,000,000 appropriation of state funds. In 1999, the program received \$3,840,506 from the SRF, with no supplemental funding from the legislature. In 2000, it received only \$1,000,000 from the SRF, and an additional \$1,000,000 in state funds. At this time the program anticipates receiving approximately \$1,000,000 from the SRF in 2001 as well. However, the impact of this reduced funding on loan availability has not been quite as dramatic as these figures suggest, because not all funds committed in previous years were actually spent, providing a pool of money that could be reallocated by the program. Additionally, as some of the loans of earlier years are repaid to the local units of government, those funds have been loaned out again. Actual amounts loaned out for feedlot related projects are set forth below.

Animal Agriculture Projects

One of the five categories of projects funded by this program is called "Agricultural Waste Management Systems." Each year it has been the largest of the categories, consistently capturing around 45% of the program funding. Between 1995 and 2000, the program provided loans for about 620 agricultural waste projects.

Type of Project	Number completed
Replacement or upgrading of manure holding basins, pits, or tanks	250
Manure handling, spreading, or incorporation equipment	320
Feedlot improvements such as clean water diversions around feedlots or berms and chutes to contain and direct contaminated runoff to holding basins	50

Source: Department of Agriculture, Agricultural Best Management Practices Loan Program, State Revolving Fund Status Report, 2000, page 18.

Loans can be for the full amount of the project, however they generally are not. The average AgBMP loan for projects in this category is \$19,500, or approximately 64% of the average total project cost of \$30,600. Feedlots with over 1000 AU are not eligible for the program, and the average size of the farms on which these projects are implemented is 400 AU. Most loans have gone to pork producers (40%) and dairy producers (38%), with considerably less going to cattle producers (12%), poultry producers (1%), and mixed production (8%).

Since its inception, the AgBMP has disbursed the following on loans for animal waste management:

1995	1996	1997	1998	1999	2000
\$ 646,350	\$ 2,773,364	\$ 3,132,187	\$ 2,920,476	\$ 3,166,463	\$ 1,269,376*

Source: Figures provided by the Department of Agriculture, AgBMP Program (Includes loans from appropriated funds and from funds that have revolved back into system after loans are paid back).

*Data for 2000 as of 11/08/00.

The money that the program receives under the Clean Water Act, via the SRF, is explicitly tied to water pollution responses, and according to federal spending restrictions, may not be used for any projects unless mitigation of water pollution is the primary purpose. However, when the legislature appropriated the supplemental million dollars to the program in 2000, the law expressly stated that, in addition to spending these funds on water pollution responses, they could also be spent on “odor and other air quality best management practices.”¹¹ As noted above, however, it did not amend the program’s enabling legislation to reflect this broader mandate, which currently relates to lending for practices to “prevent or mitigate nonpoint sources of water pollution.”¹²

Administration of Program

Local units of government compete every year for funding under this program, which then goes into local revolving accounts. About half of the organizations getting funding are Soil and Water Conservation Districts (SWCDs), a quarter are counties, and a quarter are Joint Power Organizations made up of counties and SWCDs. Their applications are required to identify local water problems, causes, solutions and priorities, and to divide their proposed work into five categories. Agricultural waste management is one of the categories, allowing the AgBMP program to track how much it spends on this issue, as compared to the others. Proposals are ranked based on the local unit’s success in implementing past proposals, and according to statutory criteria, like potential surface and groundwater benefits and whether the activities are identified as priorities in the local comprehensive water management plan. If the allocation to the local unit is less than it has requested, it is allowed to choose whether to only fund its top priority projects or allocate a lesser amount to all its projects.

Once the money goes to the local units, farmers apply to them for loans. (Local banks are also involved in determining the credit worthiness of the applicant, and in administering the loan). It is the local unit of government that reviews the practices that the farmer is proposing to implement, and decides whether they are “best management practices” that will help meet local water planning goals. The loans to the farmers have a term of ten years; as they are repaid to the local unit they may be loaned out again as “second generation” loans.

A survey conducted in 1997 indicates a very high level of satisfaction with the program among borrowers, county contacts, and local lenders.

State Cost-Share and Feedlot Water Quality Management Programs (Cost-Share)

Funding Sources and Goals

Compared to the other major grant and loan programs discussed here, Minnesota's Cost Share Program is the oldest. It was established back in 1977 as part of a larger initiative focusing on protecting surface waters from erosion and sedimentation. It is part of the same law that establishes the Soil and Water Conservation Districts, and it is administered by the Board of Water and Soil Resources (BWSR).

The Cost Share Program is funded by legislative appropriation. Its annual funding hovered between around \$1.6 and \$1.8 million between 1977 and 1992. Between 1993 and 1997 it was just over \$2 million, reflecting an additional appropriation to address water quality in the Minnesota River. This funding is not exclusively for agricultural practices, but for erosion and sedimentation problems generally, but BWSR estimates that about 40% of the funding routinely went to address feedlot issues. In 1998 an additional appropriation (which has ranged between one and two million dollars per year and is currently \$1.5 million) was made for Feedlot Water Quality Management (FWQM) grants. This program is administered through the existing State Cost Share Program, and subject to the rules of that program. Since 1998, the annual appropriations for the Cost Share and FWQM grants have been \$4.12 million. About \$2 million per year have been spent on feedlots. (BWSR has additionally spent approximately \$300,000 on feedlot pollution through its Local Water Planning funds, which are distinct from its Cost Share funds.)

State statute authorizes BWSR to allocate cost share funds for "erosion or sedimentation control or water quality improvements that are designed to protect and improve soil and water resources."¹³ There is some consideration of protecting ground water quality in the program's guidelines, but the program is designed around the primary goals of protecting surface water, and addressing the threats of erosion, sedimentation and nutrient run-off.¹⁴

Animal Agriculture Projects

It is BWSR policy to only provide cost-share funding to feedlots that are less than 500 animal units. Initially, the FWQM appropriation came with language giving a preference to farms that had received a Notice of Violation from the MPCA, documenting a violation of the agency's regulations. This statutory language was later removed; as a matter of policy, BWSR still gives slight preference to projects that would help resolve matters that have been the subject of Notices of Violation, though in practice this factor has not mattered in the competition for funds.

According to administrative rules adopted by BWSR, the Cost-Share Program will not fund more than 75% of a project. Moreover, the total amount of state and federal grant funding for all sources must not exceed 75%.¹⁵ The additional 25% may be covered by low-interest loans like the AgBMP loans. Typically farmers receiving state Cost Share funds have about 50% of their costs covered by Cost Share, another 25% covered by

AgBMP, and cover the remaining 25% with their own resources (or services in-kind on the farm).

To be funded, projects must fall within an approved list of projects. The list is the same list that the federal cost-share program (EQIP, described below) has developed, though in practice the state may fund a somewhat wider range of projects than the EQIP program since projects can be designed and approved by experts other than those employed by the agency. In contrast, EQIP engineers (for engineering projects) or other staff must approve EQIP projects.

Program Administration

Similar to the AgBMP Program, the money is funneled down from the state government to local units of government, to then be distributed to local landowners through contracts. In this case, however, the local units are all Soil and Water Conservation Districts (SWCDs); funding under the Cost Share Program is tied to approval of the SWCDs' water planning efforts. Most of the funding is given out through a competitive grant process which requires the SWCDs to identify local erosion and water problems, and their approach to addressing those problems.

Federal Environmental Quality Incentive Program (EQIP)

Funding Sources and History

In the 1996 federal Farm Bill, Congress consolidated four earlier conservation programs to form the Environmental Quality Incentive Program (EQIP). The program is designed to help farmers and ranchers who face serious threats to soil, water and related natural resources. Like the state Cost-Share program, it provides partial funding (up to 75%) of agricultural projects, but it also provides ongoing "incentive payments" to encourage certain management practices over time. EQIP also offers technical and educational assistance. The EQIP program is administered by the Natural Resource Conservation Service (NRCS), with some assistance from the Farm Services Administration (FSA), both branches of the U.S. Department of Agriculture.

EQIP is funded through the federal Commodity Credit Corporation, which also funds many other USDA conservation programs. It has been allocated \$200 million of the funds through 2002 (although this funding is not entirely solid; according to NRCS staff, in the last two years the program only received \$174 million). Fifty percent of this funding must be spent on livestock operations; a report by the General Accounting Office indicates that in fiscal year 1999, \$87 million was spent on animal waste management. Large feedlots (generally those over 1000 AUs) are not eligible to receive any financial assistance, though they are eligible for educational and technical assistance. In practice, though, this may be hard for larger feedlots to obtain. In Minnesota, the wait to obtain free technical assistance from agency engineers is lengthy, and the agency prioritizes the needs of smaller feedlots (those under 500 AUs).

Unlike the AgBMP and state Cost Share programs, the EQIP program seeks to target its resources mainly within specific priority areas identified as being particularly sensitive or

subject to significant resource problems. Priority areas are generally defined as particular rivers, creeks or bays and the land within their watersheds. In 2000, for example, 18 areas were identified as priority areas. The priority areas are selected each year. Priority areas are identified through a process that begins with local SWCDs convening a local work group that includes staff of various local, state and federal conservation agencies. This work group completes a natural resource needs assessment and a proposal for addressing priorities identified in that assessment. Sometimes these proposals specifically address particular properties, with farmers already lined up in support of the application, however this is not a requirement. The proposals are submitted to the NRCS State Conservationist, who selects the priority areas, along with advice from a State Technical Committee.

At least 65% of EQIP's funds must be spent within the identified priority areas, with the rest of the state competing for the balance, though in Minnesota the amount spent on priority areas is sometimes closer to 70%. Therefore, farmers within the priority areas have a much greater chance of qualifying for financial aid than those outside the priority areas. Demand for financial assistance is considerably greater than available funding; last year the Minnesota program received about 500 requests, and funded 160 of them, mostly within the priority areas.

Financial assistance under this program comes mainly in the form of five to ten year contracts with farmers. As under State Cost Share, EQIP cost-share funds cannot exceed 75% of costs to install new practices, with a maximum of \$10,000 for any fiscal year and \$50,000 over the life of the contract. Contracts may also provide incentive payments for nutrient management or other ongoing land management practices.

Animal Agriculture Projects

In 1997, when the first allocations were made under the new federal EQIP program, Minnesota received over 5 million dollars. Since then, its share of funding has hovered close to \$4 million dollars. Around 40-45% of this has been spent on waste management systems such as manure storage structures. Additional sums have been spent on other livestock related activities, like advanced nutrient management and prescribed grazing systems, bringing total livestock related expenditures to a fairly consistent 60% over the life of the program (the law requires that at least 50% of spending be related to livestock). In other words, the program has been spending around \$2.4 million/year on animal agriculture in Minnesota since 1998.

Unlike the AgBMP funds from the SRF and the State Cost Share program, the EQIP program theoretically treats all resources the same. EQIP program literature states "soil, water, air, plant, animal, and related natural resource concerns are given equal initial consideration..."¹⁶ However, funding is focused within priority areas, and in practice those priority areas tend to be determined based on surface water quality concerns, and indeed to be defined based on particular surface water bodies. Moreover, projects funded by EQIP must comply with technical standards that the program publishes. Only listed practices are eligible, though special permission could be granted to implement

experimental practices. The listed practices tend to be those that mainly address traditional surface runoff concerns, not emerging air quality concerns.

A 1999 report by the General Accounting Office presented a list of fifteen types of animal waste-related projects funded nationally by EQIP, and the average installation costs. The major types of practices include the following:

Practice	Definition/Purpose	Average installation cost per unit
Manure transfer*	Conveyance system, such as pipelines and concrete-lined ditches, that transfer animal waste (manure, bedding material, spilled feed, process and wash water, and other residues associated with animal production) to (1) a storage or treatment facility, (2) a loading area, and (3) agricultural land for final utilization.	\$10,932 per system
Waste Management System	Planned system in which all necessary components are installed for managing liquid and solid waste, including runoff from concentrated waste areas, in a manner that does not degrade air, soil, or water resources. A system may consist of a single component, such as a diversion, or of several components.	\$20,477 per system
Waste Storage Facility	Impoundment made by constructing an embankment and/or excavating a pit or dugout or by fabricating a structure to temporarily store wastes, such as manure, wastewater, or contaminated runoff.	\$19,141 per facility
Waste Treatment Lagoon*	Impoundment made by excavation or earthfill for biological treatment of animal or other agricultural waste.	\$20,777 per lagoon

*Fewer than 30 systems completed at the time of the 1999 report, meaning the average cost may not be a statistically valid estimate, according to USDA official.

Source: excerpted from GAO Report, Animal Agriculture; Waste Management Practices (GAO/RCED-99-205), Appendix II, based on USDA data.

Program Administration

After an area has been designated as a priority area, the local work groups rank each farmer's application according to guidelines provided by the NRCS, according to environment benefits for the money spent. While the resulting contract is between the farmer and the USDA, technical project review mainly takes place at the local level. Projects must comply with NRCS's published technical standards. Local paperwork is handled by the FSA.

Other Programs

MPCA's Grant and Loan Programs

The MPCA implements a Clean Water Partnership Program that offers both grants (from state general funds) and loans (from the SRF, the same mainly federal source that funds the AgBMP program). This program focuses on nonpoint source pollution from any source, not just animal agriculture. The MPCA also implements a related program known as the Section 319 program because it is funded by federal money received under the Clean Water Act's section 319, which addresses nonpoint water pollution sources. Together these programs provide approximately \$8.3 million in grants and loans to local governments. Approximately a million dollars ends up then being given as grants or loans to feedlot operators to address run-off concerns.

Additional Information

Minn. Stat. section 103F.725

Minn. Rules chapter 7076

Clean Water Act, section 319 [33 U.S.C. section 1329(h)]

MPCA website at www.pca.state.mn.us/water/cwpartner.html

Sustainable Agriculture Grant and Loan Programs.

The Minnesota Department of Agriculture's Energy and Sustainable Agriculture Program administers both a grant and a loan program. The grant program funds demonstration projects aiming to show reduced farm inputs, improved energy efficiency, or usable on-farm energy production. Grants are for a maximum of \$25,000. Since the programs inception in 1989, it has funded 192 projects (out of a total of 850 grant applications), at a total cost of over \$2 million. The amount given out annually has ranged from \$46,000 to \$280,000; in recent years it has hovered around \$200,000. Of eighteen demonstration projects funded in 2000, five were directly related to animal agriculture. The loan program draws on a \$1 million revolving fund to make low-interest loans to farmers of up to \$15,000 per farmer, or \$75,000 for joint projects, with about \$250,000 in loan money available each year. Several other states have been studying Minnesota's loan program to determine whether it is appropriate for their regions.

In 1998 this program was expanded to include \$200,000 earmarked to provide revolving loans for demonstration projects for manure digesters. This money is available for use as a match for federal loans and grants (such as those provided for manure digesters under the EPA's AgStar program).

Additional Information:

Minn. Stat. sections 17.115 and 17.116.

Minn. 1998 Session Laws, Ch. 401, section 6 (re manure digester loans)

MDA Sustainable Agriculture Website at

www.mda.state.mn.us/ESAP/default.htm

Annual MDA publications, like Greenbook 2000

Small Watershed Program

The NRCS of the USDA, the same office that handles the EQIP program, also implements the Small Watershed Program. This federal program, which was first enacted in 1954 and is also known as the PL-566 Program, is available to fund special watershed protection projects with a very long-term focus. A project is underway in the watershed of the Whitewater River in southeastern Minnesota that aims in part to deal with animal agriculture runoff. Its project life is fifty years, with total estimated costs in the neighborhood of five million dollars.

Additional Information:

Watershed Planning Team Water Resource Projects Status Report, Oct. 1999,
USDA NRCS, St. Paul, Minnesota.

Program website at www.mn.nrcs.usda.gov/watersheds/watershed.html

PROPERTY TAX EXEMPTION FOR POLLUTION CONTROL EQUIPMENT

State law allows exempts from property taxation equipment that is used primarily for pollution control. It also exempts real estate that is used primarily for pollution control as part of an agricultural operation, and explicitly exempts manure pits.¹⁷ According to the Minnesota Department of Revenue, these exemptions are hardly ever used with respect to feedlots. In the last year, only two taxpayers claimed such an exemption. Typically, only one or two such exemptions are claimed, and some years, there are no such claims.

Chapter 3

SURVEY OF STATES

INTRODUCTION

As one of the tasks needed to complete the Technical Work Paper for Topic C, Role of Government, the Environmental Quality Board staff directed that a survey of other states should be conducted. The survey was to cover current feedlot issues, existing laws and programs, and new approaches that are being considered.

A survey of eight states was conducted in September and October 2000. The states to be surveyed and the questions to be asked were reviewed and discussed with the Citizens Advisory Committee on August 29, 2000.

METHODOLOGY

All of the states (except Idaho) were sent interview questionnaires to fill out. Iowa, Nebraska, North Carolina and Missouri returned completed surveys. Wisconsin and South Carolina prepared reports addressing the questions in the survey. California staff was unable to complete the survey but supplied some information via email and phone and directed us to web sites.

On-site interviews were conducted in four states (Idaho, North Carolina, South Carolina, and Wisconsin). Follow up conversations were held by telephone to expand and explain the information received. Some states also supplied additional written materials to describe state programs.

Two other main sources were used:

- 1998 National Survey of Animal Confinement Policies—This is a survey designed and administered by the Animal Confinement Policy National Task Force, representing land grant agricultural economists from a dozen universities and chaired by Mark Edelman, Iowa State University.
- Report on State Programs, Wisconsin Department of Natural Resources, August 2000—This unpublished report was compiled by Wisconsin staff as part of a study done on CAFO/AFO air issues in surrounding states. The report summarizes the results of a meeting held in April 2000 with representatives of the Regions V and VII states, Iowa, and EPA Region V.

Additional sources are noted in the bibliography.

CONTACTS

The following persons were contacted for this survey:

Iowa

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California

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CA Attorney General's Office
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CA EPA

Idaho

David Mabe
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Idaho Department of Environmental Quality

DISCUSSION OF RESULTS

Permits

All the states that we surveyed, except Idaho, are authorized to issue National Pollutant Discharge Elimination System (NPDES) permits. Generally NPDES permits are required for facilities having over 1,000 animal units with the potential to discharge into the waters of the state.

Three states, North Carolina, Nebraska, and South Carolina, have state regulations that are stricter than NPDES standards. Iowa, Nebraska, North Carolina and South Carolina require state permits for certain facilities that are below the NPDES permit limits.

Besides using state permits, there are several other ways states manage facilities that do not require NPDES permits. For facilities that are under 1000 animal units, the Wisconsin Department of Natural Resources has a Notice of Discharge (NOD) program. NODs are issued to operations with a significant discharge to waters of the state, whether groundwater or surface water. NODs address manure management and are intended to eliminate need for a permit by eliminating the discharge or correcting the violation.

Idaho, which is a large dairy state, has developed new regulations for dairies under a Memorandum of Understanding (MOU). About four years ago, when the large dairy operations began to expand in Idaho, the Dairy Association asked the state government to develop a negotiated regulatory arrangement for dairy operations. The result was the MOU. Under the MOU, rules for dairy feedlot management and enforcement were developed. Additionally, Idaho Department of Environmental Quality (IDEQ) has recently been authorized to develop regulations for new swine and poultry operations involving more than 2,000 animal units.

California also has a significant number of dairies. California's environmental regulations are not directly enforced by the state but rather are decentralized through Regional Water Quality Control Boards. The Regional Water Quality Control Boards grant and enforce permits and function under the authority of the State Water Resources Control Board (a branch of California EPA).

California requires NPDES permits for large facilities. Other facilities may require a Waste Discharge Requirement. Most dairies are operating under a Waiver of Waste Discharge Requirement, which requires the facility to operate without adverse impact to the environment.

Two states have recently developed regulations in response to major events. In the summer of 1995, North Carolina experienced a devastating series of massive spills of hog waste. Environmentally sensitive estuarine rivers suffered record fish kills. One source stated that the spills of 1995 occurred because heavy rains, an exploding livestock population and antiquated regulations combined to produce an environmental disaster.

In 1997 the North Carolina General Assembly ratified a comprehensive "Clean Water Responsibility" bill which called for a moratorium on new and expanding swine facilities, allowed counties to adopt local zoning regulations for larger swine farms, required the development of a plan to phase out anaerobic swine lagoons and sprayfields, and directed the adoption of standards to control odors from hog operations.

South Carolina has had stringent regulations regarding animal facilities for some time. In fact, South Carolina takes the position that it has no CAFOs since it does not allow any discharge from any facility. Lagoons in S.C. must be designed to hold the facility wastes, average rainfall, a 25-year storm event plus a one foot freeboard for the entire period until the waste is land applied. South Carolina argues that this requirement meets the NPDES CAFO exception.

In 1995, two large companies proposed large hog operations in South Carolina. This caused a major uproar in the state and the state passed the 1996 Confined Swine Operations Act. State permits are required for any facility where swine or other animal waste is produced, processed or disposed. The handling, storage, treatment and final disposal or utilization of swine waste from a new or expanding swine facility must be permitted.

Odor issues are getting attention in the states we surveyed. Iowa reported that it is starting to address odors and Missouri is in the process of developing new rules, which they expect to have in place by January 2002. South Carolina's Confined Swine Operations Act includes provisions for addressing odors. In Wisconsin, agricultural operations are exempt from air quality regulations but the state is in the process of reviewing its programs for air quality as it relates to animal facilities. Nebraska had an advisory group looking into the issue of odor regulation.

The surveyed states differ significantly on how counties handle feedlot facilities. In Missouri, local government involvement is reported to be uncommon and then only if the concern involves human health. In Nebraska and Iowa, counties may comment on state permits for facilities.

Iowa law exempts land and farm buildings from county zoning authority. However, a couple of recent court cases in Iowa have sent mixed signals with one decision upholding the exemption from county zoning authority and the other validating some county ordinances requiring approval for new livestock facilities.

Wisconsin county governments are involved on a zoning and ordinance level. Local governing bodies are responsible for facility locating requirements. Local governmental

units may enact regulations for livestock operations that exceed state regulation only if the local government demonstrates that the regulations are necessary to achieve water quality standards.

South Carolina's counties are also responsible for land use and can regulate the location of facilities through zoning. County governments attempts to regulate swine operating facilities was what prompted the state to enact its 1996 comprehensive confined swine feeding operation law. The law originated when counties, faced with some proposals for large-scale hog facilities, attempted to impose local regulations. The major state agricultural organizations tried to get the state to prohibit counties from imposing tougher feedlot standards than the state. Their proposal, however, turned into the 1996 Confined Swine Act.

North Carolina, like Iowa, specifically excluded farms from county zoning regulations. The 1997 Clean Water bill removed the previous zoning exemption for farms and authorized county governments to regulate hog farms and other agricultural facilities.

Idaho's land use planning laws give counties authority to permit CAFO facilities. Several counties have a conditional use or a livestock confinement operation permit. Some counties have expressed concern that they might not have enough expertise to adequately evaluate the impacts of livestock operations. A memorandum of understanding was developed with several state entities to provide technical assistance to counties when siting CAFOs. Idaho DEQ retains responsibility for environmental issues and counties are responsible for social and economic issues as part of their conditional use authority.

Incentives

Based on the responses that we received, it appears that incentive programs are fairly limited in these states. Nebraska, Iowa, and South Carolina rely primarily on federal programs. Iowa does have some additional funds available through their Organic Nutrient Management Fund, which provides cost-share incentives to properly manage manure and protect water resources. Iowa also has provided some cost-share money for odor control demonstration projects on farms, administered through the ISU Extension.

Wisconsin provides cost-share incentives through its regulatory process. Farming operations, which have a Notice of Discharge (NOD), can request cost sharing technical assistance from the Department of Agriculture, Trade, and Consumer Protection. The Department of Natural Resources also may award a cost-share grant for a manure storage system if the system is needed in order to comply with a NOD.

Wisconsin's Soil and Water Resource Management Program includes cost-share grants and incentive payments to landowners and land users. Activities such as manure storage systems, manure storage abandonment, nutrient management and waste transfer systems are eligible.

North Carolina has a well-funded cost-share program in place run by the Natural Resource Conservation Service. Money from this fund is used to pay for half the cost of field technicians stationed in the counties. These technicians help farmers design facilities, sign off on most engineering plans and do all of the feedlot Best Management Practices.

North Carolina is also looking at a “planned intervention” process with smaller operations where first technical assistance is provided, and then cost-share is available. If the operation does not change, intervention proceeds to enforcement.

Environmental Review

Wisconsin and California were the only states that reported having an environmental review program.

California has the California Environmental Quality Act, which is very similar to NEPA. In most instances regarding dairies, it is the county that would have the “lead agency” responsibility to prepare an environmental document under CEQA.

Wisconsin Pollutant Discharge Elimination Systems permits are linked to environmental assessments. Environmental assessments require general operation information, economic impacts, and description of affected environments and cultural impacts.

An environmental assessment questionnaire is included in an application packet for a WPDES permit. This information is used to draft an environmental analysis. The environmental assessment is reviewed by the state and is required to go through a public notice process.

Several states mentioned that certain environmental aspects are examined as part of their permitting process, but no separate review was required.

Cumulative impact analysis is starting to be looked at in Iowa, South Carolina, and Missouri and on the local level in Nebraska. However, when it is addressed, it will be through a permitting process.

None of the states conduct generic environmental review.

Public Complaints

Of the states that responded to the question about how public complaints are handled, most indicated that complaints are managed through regional offices.

Wisconsin divides the state into five regions and DNR regional staff responds to complaints. The Wisconsin DNR has also worked with citizen groups and encouraged their input throughout the permit process.

Both Nebraska and South Carolina set time limits on how quickly staff must respond to complaints. Nebraska requires that staff investigate all complaints within seven days.

They note that water discharges are their highest priority, but complaints about odors, flies and location may still prompt an inspection. South Carolina requires its district offices to follow up on complaints within 48 hours.

Idaho noted that most of the complaints they receive are odor related. Feedlots tend to be located in the southern interstate highway corridor that is also the most populated part of the state. Idaho has recently purchased two air quality monitoring trailers, which can be placed in areas where there are significant complaints.

All the states surveyed have some form of right-to-farm law that restricts nuisance actions against farming operations. Most states, however, have narrowed the scope of their right-to-farm laws to exclude new facilities or certain types of facilities from protection. For example, North Carolina's law protects farms that have existed for one year without significant change. Nebraska excludes expansions from protection. Many exclude operations that are operating negligently or are in violation of regulations.

General

At the end of the survey, we asked some general questions aimed at getting the opinions of the agency staff about major challenges facing the state, the best management tools they have and any new programs that are underway.

When asked what the biggest problems regarding regulation or management of feedlots are, we got a variety of responses. Iowa noted that a lack of funding for personnel is limiting field inspections. Both Missouri and Wisconsin cited odor as their biggest problem. Missouri also is concerned about water problems.

Wisconsin staff also noted that historically agricultural operations have been exempt from many of the laws that other industries must abide by. The state is working to even the playing field but trying to do it equitably and not put producers out of business.

Nebraska expressed a similar concern for setting regulations that protect the environment but are not cost prohibitive for the producer. They also noted that producers groups are concerned that regulations may become more restrictive for the small "family" farmer while trying to address the large operations.

North Carolina reports having 2200 hog feedlots and about 17 million pigs. There is concern that this population is not sustainable in the state's environment.

When asked about their most effective mechanism for managing feedlots, Iowa, Wisconsin, and Missouri cited their regulations and permit process. Idaho noted that their memorandum of understanding regarding dairy operations was their most effective mechanism.

Nebraska included three items as their most effective mechanisms. They cited their regulations, which are more restrictive than federal standards and were developed with a wide variety of input from around the state. Another effect mechanism is the state

outreach programs, which link agencies, producers, and advisors to discuss problems. And finally, they credit that personnel working within the program who have a great deal of knowledge and experience in the livestock industry and good communications skills. With this combination of knowledge, experience and skills, the personnel can be at the same level with the producers and technical advisors to ensure the regulations are being met and the producer is aware of what he has to do to be in compliance with the regulations.

When asked about plans for new programs to address feedlots, most states reported some new undertakings. Iowa is looking more closely at open feedlot operations, which are not as heavily regulated as confined operations.

Wisconsin is pursuing three changes to its programs. The DNR is developing guidelines for flexible performance standards, which they hope to have in place by 2001. The DNR is also proposing that some "common sense" procedures that are not currently in the rules should be formally added to the rules. And Wisconsin is in the process of reviewing its programs for air quality as they pertain to LFO/CAFO/AFOs.

Nebraska has recently made major revisions to its regulations and added personnel to administer the program. The Department is not proposing any additional changes at this time.

Missouri also just instituted new rules regarding odor control. The state was getting a new governor soon and any new initiative depended on the new governor's priorities.

North Carolina is pursuing the Governor's 10-year lagoon conversion plan that encourages closing out inactive sites, improves risk evaluation, encourages new technologies, and develops a state nutrient plan. The state also has a 30% ammonia reduction goal.

Idaho is continuing to develop Memorandums of Understanding with counties in the state. One county has already completed a MOU. The MOUs provide for an exchange of information between the county and the state's Department of Environmental Quality to help the counties decide how detailed their conditional use permits should be. In addition, the same parties who negotiated the dairy MOU are now negotiating a beef cattle MOU.

The last question asked about any programs that the state might have to encourage the use of new technology for managing air quality or water quality problems.

Idaho noted that, among other things, counties can require alternative technologies (such as a digester) as part of their conditional use permits. The state's MOU program with the counties will help encourage this. New technologies can be used to meet state standards. This is more likely for swine and poultry operations because requirements are stricter for them.

Wisconsin DNR mentioned that they also are working with several operations that are using digesters. They plan to use the methane produced by the manure on site to generate heat or electricity for on farm use. DNR encourages separation and reuse of volumes of flush water and sand for bedding. A couple of operations are composting the dried, solid portion of manure for reuse by gardeners and landscapers. One operation has covered the manure storage facility to trap methane and burn it off to eliminate odors.

North Carolina's 10-year lagoon conversion plan is encouraging the use of new technologies.

South Carolina regulations contain a section on the use of innovative and alternative technology. Other regulatory requirements may be reduced or eliminated by the use of new technology.

The results of the survey can be found in Appendix A.

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Chapter 4

BUILDING A MORE INTEGRATED, PROBLEM SOLVING APPROACH TO ANIMAL FEEDING OPERATIONS

Introduction and Findings

Animal feeding operations share many of the characteristics of other difficult environmental problems facing government today: operations number in the tens of thousands, range from very small to very large, the impacts are not always apparent, significant scientific uncertainty remains for at least some of the asserted impacts, and environmental regulation is relatively new to the sector. But animal feeding operations present additional, unique challenges including

- an industry that is rapidly changing;
- significant social and economic concerns related to farming, especially family farms;
- a long history of environmental exemptions for agricultural operations;
- the introduction of very large concentrated feeding operations that raise new air pollution and catastrophic spill concerns; and
- rural development patterns that increasingly bring non-farmers in contact with farming operations.

These factors make the role of government in animal feeding operations both very difficult and inevitably controversial. This chapter suggests a number of ways that government can respond to the environmental issues related to animal feeding operations based on our research that included attending roundtable meetings in northwest Minnesota, southwest Minnesota, Stearns County and Goodhue County; interviews of state agency personnel in Minnesota, Wisconsin, Idaho and North and South Carolina, county feedlot staff, farmers, citizens, advocacy groups and trade associations; analysis of state legislation and state and federal feedlot rules; and review of state agency strategy documents and budgets and the emerging public administration literature.

Based on this research we found that:

- conflict concerning animal feeding operations continues to be significant, indicating that government needs to focus on building a better understanding about the key environmental issues that need to be addressed;
- government resources (both staffing and financial) are quite limited given the large number of animal feeding operations;
- this situation has resulted in overreliance on citizen complaints to drive oversight of animal feeding operations;
- the limited resources require state and local governmental agencies, as well as federal agencies, to focus more precisely on critical problems and better coordinate their collective efforts;

- government agencies have not developed a clear set of widely accepted and publicly acknowledged priorities for animal feeding operations;
- government agencies do not have an integrated plan for solving priority problems related to animal feeding operations;
- there is little sense of “team” between Minnesota Pollution Control Agency (MPCA) staff and county feedlot staff;
- some aspects of the current state feedlot management program appear to conflict with federal requirements, potentially threatening the ability of the state to maintain its delegation for feedlots subject to the Clean Water Act;
- better opportunities for dialogue among farmers, government staff and citizens could help to reduce conflict, but few opportunities currently exist for this dialogue;
- the absence of good ambient monitoring data makes it more difficult to build a consensus on the environmental problems that need to be addressed and to assess progress in addressing these problems; and
- current information systems make it difficult for agency staff and the public to track the number and location of feedlots, complaints, inspections and enforcement activities, as well as environmental conditions related to animal feeding operations.

We suggest that for state and county governments to be successful in addressing environmental problems related to animal feeding operations, they will have to build a more integrated, problem-solving approach that:

- identifies a few key problems, and sets about fixing them;
- develops a compliance management system for each priority that uses a broad range of tools to tackle these problems including non-traditional methods that provide both direct and indirect economic incentives to improve environmental conditions and that help build a stronger stewardship ethic among agricultural producers;
- measures results and demonstrates real progress in solving the problems that have been identified;
- pools and coordinates resources, and better integrates the efforts of the many local, state and federal agencies involved with these operations;
- encourages informal public dialogue to resolve issues, in addition to the formal means of public involvement; and
- collects better management information and provides better environmental results data to the public.

We recognize that the environmental issues are inextricably tied to social and economic issues related to the size and nature of agriculture in Minnesota. Government has historically played an important role in influencing these social and economic issues through crop subsidies, conservation set aside programs, limitations on corporate ownership of farms, programs like “Buy Minnesota,” anti-trust enforcement and many other ways. However, it is beyond the scope of this paper to address how programs such as these might be adjusted to produce more socially desirable results in Minnesota.

Background

A brief review of the environmental context for animal feeding operations is helpful in thinking about the role of government related to these facilities.

The Scale and Nature of the Problem

The MPCA has variously estimated that there are between 33,000 and 40,000 animal feedlot, manure storage and pasture facilities with over 10 animal units in Minnesota.¹ Although the number of animal feeding operations is shrinking, the size of the operations is increasing and the total number of operations remains very large, presenting significant oversight challenges for government. In fact, the MPCA believes that the animal feeding sector is larger than any other sector regulated by the Agency.² Minnesota ranks high in national production for several species. And animal agriculture is important to Minnesota's economy, producing cash receipts of \$4.3 billion in 1997.³ The MPCA estimates that these operations produce the waste equivalent of roughly 60 million people.⁴

The primary environmental concerns related to animal feeding operations are water quality (principally phosphorus, nitrogen and biological oxygen demand) and air emissions (primarily odor and hydrogen sulfide). Emerging issues include use of antibiotics and antibiotic residue in wastewater, use of hormones and exposure to hormones in air emissions.

Surface Waters and Groundwater

There is considerable evidence that animal feeding operations have a significant impact on stream and lake water quality. For example, feedlots were an important contributor at 43 percent of the 37 watershed assessments conducted by the Clean Water Partnership.⁵ A 1998 study by the United States Department of Agriculture showed that manure losses to the environment through runoff, erosion, leaching to groundwater, and volatilization can be significant with nitrogen losses ranging from 31 to 50 percent for poultry, 60 to 70 percent for cattle and 75 percent for swine. The typical phosphorus loss is 15 percent according to the study.⁷ Livestock and poultry in Minnesota produce an estimated 269,000 tons of nitrogen annually.⁸ While this nitrogen can be a valuable plant nutrient, it also can create health risks if it leaches into the groundwater and reaches drinking water wells, and environmental problems if it reaches surface waters. Phosphorus runoff stimulates weed and algae growth in Minnesota's lakes and streams with one pound of phosphorus producing roughly 500 pounds of weeds or algae.⁹ Decomposition of the weeds and algae uses up oxygen needed to support aquatic ecosystems.

Animal agriculture can also affect groundwater. Nitrogen, in the form of ammonium, has been found to leach from poorly lined manure storage systems into the groundwater, where it generally converts to the nitrate form. Excess nitrogen applied to fields can also reach groundwater. Nitrates can cause health impacts in humans and animals.¹⁰ The most well documented health impact from nitrate is blue-baby syndrome. Scientists are looking into whether there is a link between nitrates and other serious health effects, including childhood diabetes and certain cancers.¹¹

Air

As animal waste is degraded by microorganisms, a variety of gases are produced, the four most prominent of which are carbon dioxide, methane, hydrogen sulfide and ammonia.¹² Over 150 odorous compounds have been identified with animal manure.¹³ Monitoring of hydrogen sulfide near Minnesota swine operations has sometimes shown levels that exceed health standards. Exposure to elevated levels of hydrogen sulfide may cause nausea, headaches, and eye, throat, and respiratory irritation.¹⁴ According to the MPCA, other possible health effects linked to feedlot odors and gases include vomiting, shallow breathing, modified olfactory function, coughing, sleep disturbances and loss of appetite.¹⁵ Both odors and hydrogen sulfide emissions have been a significant source of controversy in Minnesota. Finally, methane resulting from animal feeding operations is a potent greenhouse gas and also a potentially valuable source of energy.

Antibiotics

Antibiotics are used in animal feeding operations both to treat and prevent illness and as a feed additive to promote growth and can be expected to appear in animal wastes.¹⁶ Sub-therapeutic use of antibiotics in food production has become a major public policy issue because of concerns about increasingly resistant bacteria. People have raised concerns about antibiotic use in connection with animal feeding operations in Minnesota. In 1991, an estimated 19 million pounds of antibiotics were used in animal agriculture nation-wide and between 60 to 80 percent of all livestock and poultry receive antibiotics during their productive lifespan.¹⁷ Essentially all of an antibiotic administered is eventually excreted, whether unchanged or in metabolite form.¹⁸ Little is known about the fate and transport of antibiotics in waste. On the resistant front, normally, about 2 percent of a bacterial population are resistant to a given antibiotic; however, up to 10 percent of bacterial populations from animals regularly exposed to antibiotics have been found to be resistant.¹⁹

These facts do not necessarily demonstrate an environmental or a public health problem but they do provide a basis for public concern. The only way to resolve this concern will be better research and better information.

Pesticides and Hormones

Specific hormones are used in animal feeding operations to increase productivity. Poultry manure has been shown to contain both estrogen and testosterone.²⁰ Runoff from some fields with land-applied manure has been reported to contain estrogen, estradiol, progesterone, and testosterone, as well as their synthetic counterparts.²¹ Citizens we talked to also were concerned about the possibility of hormones contained in fugitive emissions from poultry barns. Like antibiotics, the evidence is not in on the possible effects of hormones, but there clearly is a growing level of public concern that can only be addressed by additional research and better information.

While people may disagree about the extent and the magnitude of the water and air pollution problems associated with animal feeding operations, or whether there is a problem with antibiotics and hormones, these issues are clearly important, involving serious environmental and public health concerns. They are issues government agencies

must address because they are environmental and health issues that go to the heart of the role of government.

Conflict and the Need for Consensus Building

While conflict related to environmental issues is common, it is especially acute for animal feeding operations. This is not surprising, for several reasons. First, animal agriculture is a rapidly changing industry. Increased concentration is altering the face of agriculture raising not only new environmental issues but wrenching questions about the economic vitality of smaller agricultural operations, the social structure of rural communities and the economic viability of small town businesses and small cities. This interplay of difficult and emotional economic and social issues with environmental concerns makes it much harder for government to find a consensus approach for dealing with environmental issues.

Whatever their environmental impact, people in Minnesota are familiar with smaller agricultural operations (in fact, many Minnesotans grew up on or near these types of operations). New, larger operations produce more odor and new concerns related to hydrogen sulfide emissions, catastrophic spills (especially after well-publicized spills in other states), and the disposal of large quantities of manure generated by these operations. These environmental issues are complicated by emerging issues involving antibiotics and hormones that raise heightened concerns but for which research is currently inadequate to provide definitive answers either for the producers or for the public. These health and environmental concerns are inevitably intertwined with the social and economic issues related to the changing structure of agriculture. And, increasingly non-farmers are being exposed to farming operations as rural towns expand and non-farmers move to homes that were formerly farmsteads.

A second reason for conflict is that farmers, in contrast to most other commercial operations, are not used to dealing with environmental agencies. Minnesota, like many other states, exempts farming operations from a number of environmental regulations.²² Although farmers are familiar with pesticides regulations, in Minnesota pesticides are regulated by the Department of Agriculture. Many farmers, like many businesses in the 1970s, have resisted or at least expressed concerns about the way that the MPCA works with farmers as the MPCA has become more involved in animal feeding operations. Although the roundtable meetings we attended indicated that farmers generally acknowledge that there can be water and air quality problems associated with animal feeding operations, many did not see these problems as acute. This is especially true for smaller operations from which the typical question was “What has changed that all of a sudden makes our farms an environmental problem?”

Finally, the MPCA staff are not used to dealing with farmers. Agency staff may see the agricultural exemptions in legislation as expressing a “hands off” policy towards farmers. This view has been accentuated by the intense legislative debate over the new feedlot rules and the special exceptions written into feedlot legislation passed in 2000. And there have been conflicting views among the state agencies on how to deal with animal feeding

operations. The net result is that MPCA staff and county feedlot officers may sense that their work is not supported or is under constant scrutiny.

Conflict will always be part of environmental management. However, if Minnesota is going to make significant progress in addressing the important environmental issues related to animal feeding operations, government must focus on finding ways of building a stronger consensus among producers, government agencies, public interest organizations and affected members of the public.

Behavioral Motivators

In deciding how to address any environmental problem, it is important to consider what approaches are likely to be most effective in motivating behavioral change. The three principle motivators for environmental improvement are regulations, economics, and individual and organizational values.

Regulation

For the past 30 years environmental behavior by most businesses in the United States has been driven by government regulations. These regulations—sometimes referred to disparagingly today as “command and control” regulations—have allowed the country to make very substantial progress in dealing with several environmental problems. Regulation will continue to play an important role in driving environmental behavior in the future, in part because it is the most predictable way to assure a specific environmental outcome or prevent a specific environmental problem. And governments are learning how to use more flexible, performance based regulations that avoid some of the problems with older, technology-based regulations that tended to inhibit innovation and drive up the cost of compliance.²³

Regulation is only one behavioral driver: economics and values also affect environmental decisions by both individuals and organizations. Commentators both inside and outside of government have increasingly pointed out the need to look at all three of these motivators in designing responses to environmental problems rather than relying solely on regulations.²⁴ Economics and values are especially important where, as here, there are a very large number of facilities, there are limited resources to conduct traditional governmental permitting, inspection and enforcement activities, and there is not a clear consensus on how government should regulate. The question for government is how it might be able to influence economic signals or promote values that could, in combination with its regulatory function, produce significantly better environmental results.

Economics

Economics is a powerful behavioral motivator. Many people’s initial reaction is that government does not or should not have much to do with this behavioral driver. But perhaps more than in any other industry, government has long used economic subsidies to influence agricultural producers’ behavior, including what crops to grow and what soil conservation practices to employ. Subsidies play an important role in feedlot management through cost-share programs. In fact, Governor Ventura’s 2002-2003 budget recommends \$1.4 million in cost-share funding.²⁵ Government can also influence

animal feeding operations through such things as tax credits for pollution control equipment.

In addition to these direct means, government may be able to indirectly influence the economics of animal feeding operations. For example, the MPCA has authorized some point sources of water pollution to trade reductions of non-point pollution for more lenient standards for the pollutant in their permit. This concept recognizes that it may be significantly cheaper to attain greater environmental protection by authorizing these kinds of trades. The result is that point sources may be willing to pay farmers to institute practices that reduce upstream pollution, producing changes in the farmer's operation. Another possibility is that government might develop programs that provide public recognition to animal feeding operations that agree to a set of "stewardship" practices. This recognition may bestow a market advantage for the operation with some customers.²⁶

The bottom line is that government can influence the economics of animal feeding operations, both directly and indirectly. This fact should be kept in mind in designing management options for animal feeding operations.

Values

Values also drive behavior and have long been a key factor in how farmers manage their land. Many farmers are deeply attached to their land and feel strongly about improving it for future generations. Even more so than with economics, people's first reaction is that government does not, or should not, have a role in value formation. However, a key element of value formation is information. Government has long interacted with farmers by providing information through organizations like the Extension Service. Even value neutral information plays a role in value formation because it helps people assess the consequences of their actions.

Government can also play a role in reinforcing values through promoting voluntary leadership programs that are anchored in the values of an individual or an organization. These programs are often couched in terms of "environmental stewardship," a concept increasingly embraced by business leaders.²⁷ Certainly, there are potential economic benefits for an operation to be seen as an environmental steward, but it is clear that at least part of the interest in stewardship is that the concept reinforces the values of some corporate leaders and many of their employees.²⁸ Government also can have an impact on values by providing producers with information about the environmental impact of their activities, and by providing environmental data to the public at large.

In looking for solutions to the environmental issues associated with animal feeding operations it is important to consider all of the key behavioral motivators—regulations, economics and values—assessing opportunities to use these motivators wherever possible to maximize environmental results.

Identifying Important Problems and Fixing Them—A Focus on Priorities Not Techniques

Change and uncertainty is not only a fact of life for farmers and citizens involved with animal feeding operations; it is also part of the landscape for government agencies asked to help ensure proper management of animal feeding operations. As environmental problems become more dispersed, more complex, and affect smaller operations (or individuals), and as citizens become more engaged in environmental issues, government must adjust the way it operates. Professor Malcolm Sparrow of Harvard University's Kennedy School of Government has studied the issue of the changing role of government regulators for decades beginning with his work as detective chief inspector with the British police service. In his recent book *"The Regulatory Craft: Controlling Risks, Solving Problems and Managing Compliance"* he observes:

Regulators, under unprecedented pressure, face a range of demands, often contradictory in nature: be less intrusive—but more effective; be kinder and gentler—but don't let the bastards get away with anything; focus your efforts—but be consistent; process things quicker—but be more careful next time; deal with important issues—but do not stray outside your statutory authority; be more responsive to the regulated community—but do not get captured by the industry.²⁹

These pressures are intensified in the context of animal feeding operations for the reasons discussed earlier. The result of these pressures is that government officials must think more broadly about how to approach environmental problems and what tools will be most effective in achieving desired environmental outcomes. As Professor Sparrow has noted, "For regulators, continuing in a traditional, enforcement-centered mode—given the constraints of shrinking budgets, declining public tolerance for the use of regulatory authority, and clogged judicial systems—is now infeasible."³⁰ Instead, he suggests that regulators must:

Acknowledge the constant need to make choices. Make them rationally, analytically, democratically. Take responsibility for the choices you make. Correct, by using your judgment, deficiencies of law. Organize yourself to deliver important results. Choose specific goals of public value and focus on them. Devise methods that are economical with respect to the use of state authority, resources of the regulated community, and resources of the agency [and we would add citizen's resources, including their time]. And as you carefully pick and choose what to do and how to do it, reconcile your pursuit of effectiveness with the values of justice and equity.³¹

To implement this approach Sparrow suggests three core elements for a new environmental management strategy:

1. *A clear focus on results.* This involves an explicit rejection of a principle reliance on traditional output and productivity measures [number of permits issued, number of inspections conducted, number of enforcement actions initiated, amount of penalties collected] as a basis for assessing effectiveness; a recognition of the absence of meaningful measures of effect or impact (and the difficulty of developing them); perseverance in the search for more meaningful indicators of agency performance; and a growing reliance on measurable reductions achieved within specific, well-defined problem areas, as indicators of success.
2. *The adoption of a problem-solving approach.* This involves the systematic identification of important hazards, risks, or patterns of noncompliance; an emphasis on risk assessment and prioritization as a rational and publicly defensible basis for resource allocation decisions; the development of an organizational capacity for designing and implementing effective, creative, tailor-made solutions for each identified problem; the use of range of tools for procuring compliance and eliminating risks; and the recognition of the need to retain and enhance the agency's enforcement "sting," while using enforcement actions economically and within the context of coherent compliance strategies.
3. *An investment in collaborative partnerships.* Such partnerships with industry, unions, employees, industry associations, municipalities, and other government agencies at the federal, regional, and state levels [and we would add advocacy organizations and citizens] are designed to produce a sense of shared purpose through collaborative agenda setting and prioritization; more effective interventions resulting from the active engagement of multiple parties; and optimal leveraging of scarce agency resources.³²

The essence of this strategy is simple but difficult to execute—"pick important environmental problems and fix them." Too often, regulators approach problems by asking how they can deploy their institutional tools—rules, permits, inspections, enforcement—instead of first identifying the problem and then organizing or developing tools around solving the problem. Sparrow points out that "an integrated compliance strategy (problem-solving approach) organizes the tools around the work, rather than vice versa. It identifies important risks and then develops coordinated, multifunctional responses. Often it invents new tools, techniques, or solutions tailor made for the problem in hand. Almost every problem-solving success story reveals this: effective solutions to identified risks involve either artfully crafted, properly coordinated combinations of actions or the design of something new. Such solutions could never be created by moving resources between existing functions or programs and allowing them to operate in isolation."³³

The problem-solving approach suggested by Sparrow is also the central theme of the National Academy of Public Administration's recommendations to Congress on how the United States Environmental Protection Agency should reorient its efforts to achieve better environmental results. The Academy suggested that EPA (1) select two or three of the most difficult environmental problems, (2) define the challenges in terms of measurable environmental improvements, (3) commit the agency to deploy the most cost-effective tools to achieve those results, and (4) encourage experimentation with bold forms of regulatory and non-regulatory management.³⁴ Our assessment is that an integrated, problem-solving approach to the difficult and controversial problems associated with animal feeding operations is critical to success.

Areas of Concern

Over-Reliance on Citizen Involvement

One of the strengths of Minnesota's feedlot regulatory system is that it provides opportunities for the public to formally involve themselves in the regulatory process, if they choose to do so. The rights of neighbors to be notified of changes at a site, to participate in public hearings, to file confidential complaints to government agencies, and to otherwise get involved in feedlot related issues is established by state law, and sometimes by local and federal laws too. These laws are based on the premise that public involvement in the regulation of feedlots is a critical part of the regulatory process. We do not question this basic premise, and indeed we recommend ways that public involvement can be even more meaningful. However, a regulatory system that relies *too heavily* on citizen participation, and *too little* on the exercise of informed government judgment and expertise can create problems. Although the MPCA has proposed a strategy that would change this situation in several areas assuming increased funding from the legislature, we believe that in the last few years the feedlot management system in Minnesota has relied too much on citizens to raise concerns and on citizen complaints to set priorities.

There are three areas, in particular, where reliance on citizens has been notably heavy:

Environmental Review. An Environmental Assessment Worksheet (EAW) may be required for a feedlot construction project even if it is below the mandatory triggers if the responsible governmental unit requires one based on a finding that the project may have the potential for significant environmental effects, or if citizens petition for it, and can show a potential for significant environmental effects.³⁵ While the MPCA has the authority under the law to require EAWs in non-mandatory contexts, and the expertise to recognize when such EAWs are needed, the only non-mandatory EAWs that have been performed (other than those where proposers have volunteered), have been those petitioned for by the public.

As our analysis of feedlot EAWs demonstrates, it is common for an EAW and the process surrounding it to identify important environmental problems and therefore produce stricter permit terms than would otherwise have been required. The producers, citizens,

and government officials we spoke to indicated that those additional terms may not have been included but for the insistence of members of the public who raised concerns about the project.

Permitting. Even where there is no EAW required or requested, citizen involvement in a permit process (whether before the MPCA or a county) will often result in changes in the permit designed to address, at least to some degree, the concerns raised. In some cases citizens have actually researched alternative approaches and brought these ideas to the MPCA or county for inclusion in the permit.

Inspection and enforcement. Neither the MPCA nor most of the counties we visited have systems in place to periodically inspect feedlots to ensure compliance with permitting requirements. Inspections tend to be triggered by one of two events: application for a permit or a complaint from a neighbor. Only about 800 new feedlot permits are issued each year and many of them do not involve an inspection. That means that citizen complaints have been the primary driver of the MPCA inspection and enforcement program, and complaints direct much of the county's attention as well. Once a violation has been detected by the MPCA, citizen involvement becomes minimal, but citizen involvement is crucial to detecting the violation in the first place. The Legislative Auditor noted in January of 1999 that "MPCA does not currently have the resources to conduct such [feedlot] inspections except in response to complaints, and most delegated counties do not conduct such inspections either....Along with the need for additional resources in other aspects of feedlot regulation, policy makers should consider the need for resources to conduct periodic feedlot inspections."³⁶

Ironically, while citizen involvement is more central to the regulation of feedlots than to the regulation of any other industry, citizens have less ability to litigate directly against a feedlot than they do with any other industry. Farms are protected from such actions by special exclusions from the nuisance law and from the Minnesota Environmental Rights Act. This is discussed "Liability/Public Redress," below.

The fact that citizen input into the regulatory system actually matters is certainly not in itself evidence of a problem. It would be a source of concern if citizen involvement did not make any difference in the regulation of feedlots. The problem arises when public involvement becomes a *substitute* for the reasoned application of governmental discretion and expertise, instead of just a *supplement* to it. Over-reliance on the public comes at a price that has not yet been fully recognized, and it appears in three areas in particular: 1) it divides communities, 2) it cannot assure consistent levels of environmental protection, and 3) it fosters a sense of resentment against government, among both the citizens who oppose feedlots, and the operators who run them.

Dividing Communities

A regulatory system that depends so heavily on complaints and citizen opposition "pits neighbor against neighbor." This observation, expressed by a citizen at one of the roundtable meetings, was echoed by virtually all the members of the public we spoke to who had been involved in raising objections to feedlot operations. Those who had taken advantage of the opportunities for public involvement did not typically look back on the

experience with a sense of satisfaction that they were able to participate in the regulatory process. Rather, they resented the fact that they had to do it at all, and that the government had not taken a more active role in ensuring that they and their environment were protected.

When members of the public raise objections about pollution from an industrial facility, they are often complaining about the behavior of a faceless corporation. In the feedlot context, in contrast, they are often objecting to the actions (or proposed actions) of their neighbors, and the conflict frequently becomes more personal and painful. Complaining to the government about their neighbors is hard, particularly in public and in a setting that may be intimidatingly formal. Public hearings regarding a proposed facility, whether run by the MPCA or a county, often involve standing before an audience and speaking into a microphone; hearings may even be broadcast on cable television. These formalities are for the most part designed to broaden public awareness and access to the regulatory process, but they may actually stifle involvement by intimidating some who would otherwise raise objections. We also heard complaints that some people are intimidated because they fear some form of retaliation within their community if they speak up in opposition to a project, or raise complaints about an existing operation. Some of the people we spoke to who had been active in such proceedings also spoke of how exhausting it was to try to stay involved long enough to have an impact.

Farmers have serious complaints about this system too, and we spoke to many that believed they had been the subjects of unfair complaints. Some felt they were the subjects of simple harassment from their neighbors. Others felt that those raising objections were basing them on unfounded fears or inaccurate information. This latter concern is probably well founded in some circumstances. In cases where non-farm populations are moving into farming areas, they are indeed unfamiliar with the basics of animal agriculture, and may not have the ability to judge whether a particular practice truly threatens their health or the environment. In other cases, as very large, new feedlots are being constructed in areas where smaller farms have predominated, more traditional farmers are unable to judge the extent of environmental risk posed by the more concentrated form of raising animals. Some operators of large new feedlots believe the environmental objections raised by their neighbors actually reflect resentment based on economic or social factors, and it would be surprising if this were not sometimes the case. Even when it isn't the case, feedlot operators will often be left wondering about the motives of those who complain. And, just as it is hard for citizens to publicly object to their neighbor's feedlot, it is difficult for farmers to have their feedlots publicly criticized by their neighbors.

We do not want to overstate the level of conflict around feedlot operations. Many communities appear to have found ways to accommodate the conflicting concerns, and many concerns related to proposed feedlots appear to have faded away once the feedlots were actually built. We also don't mean to suggest that the heavy reliance on citizen complaints and objections is the only source of conflict over the changes in animal agriculture. Major changes in the rural economy mean a certain amount of conflict is inevitable. Generally speaking, though, the heavy reliance on public involvement in the

regulatory process is making a stressful situation worse, contributing to a lingering sense of conflict and distrust within the affected communities.

Inconsistent Environmental Protection

We are aware of no other area of environmental regulation that relies so heavily on public complaints to ensure facilities' compliance with the laws. If the environmental problems posed by feedlots were all minor ones, this level of reliance might be appropriate. However, since there are major environmental problems associated with animal feeding operations, assuring that these facilities comply with environmental requirements deserves additional attention from those agencies charged with protecting the environment.

Depending so much on citizen complaints necessarily leads to spotty protection of the environment. Some problems can't be detected by neighbors, like a leaking basin that threatens the groundwater, or contamination of surface water at levels below what is detectable by downstream neighbors. Sometimes neighbors are simply not close enough to detect an environmental threat, or they are unable to pinpoint its source. And as discussed, sometimes neighbors choose not to complain, because they don't want to cause trouble, because they do not believe it will help, or for other reasons. In some circumstances, public fears may be exaggerated; in this case, farmers may be pressured to accept into their permits stricter terms than environmental protection would otherwise require.

Resentment of the MPCA

The citizens we spoke to, who had raised objections to feedlot operations before the MPCA, had an almost uniform sense of resentment against the agency. While they generally respected the individuals they dealt with, they felt that as an institution, the MPCA was far too passive in its regulation of feedlots, and that it had to be prodded repeatedly to act. The sense of resentment by farmers against the MPCA was also strong, but for different reasons: they generally felt the MPCA was being irrational in its requirements, not basing them on environmental need but rather on an attempt to appease the public, or in some cases on the strict application of a policy that was not rational in the context of their particular farm. Between both groups, there was a perception that the MPCA was not exercising its own reasoned, scientific judgment, but merely responding to outside pressures. It is hardly surprising that such sentiments exist against the MPCA; it is unrealistic to imagine that the agency will be able to make everyone happy given the changes going on in animal agriculture. Still, we believe that with additional resources and certain changes in its approach, discussed below, the MPCA would be able to better protect the environment and win greater respect from both feedlot operators and the general public.

A Fragmented Approach

Because the government not only regulates agriculture but also supports it in varied ways, there are probably more government offices directly involved in agriculture than in any other industry. For example, environmental regulation is handled by the EPA, the MPCA, the counties, and in some cases by townships. Mainly the state and federal Departments of Agriculture carry out health regulation, but the Minnesota Department of

Health has also been involved on issues such as hydrogen sulfide emissions. The University Extension Service as well as the Department of Agriculture, the Board of Water and Soil Resources and federal agencies, promotes educational programs. Grant and loan programs for environmental remediation are implemented by offices of the state and federal agriculture departments, by the state Board of Water and Soil Resources, by the MPCA and by counties and Soil and Water Conservation Districts. The number of different government offices involved in this industry greatly increases the need for integration among the various offices to make sure that the programs are building off each other and solving priority problems, rather than working in different directions or at cross-purposes. The Feedlot and Manure Management Advisory Committee (FMMAC) has provided a useful coordination forum on some issues but, over the longer-term, there is a need for greater integration among the offices.

The majority of the programs in place to deal with the environmental problems posed by feedlots address surface water runoff concerns. This focus on surface water quality is strongly evident in the grant and loan programs available to farmers, in the statutes and regulations related to feedlots, and in the diagnostic tools used to assess a feedlot's environmental impact. For example, a computer program known as FLEVAL, for Feedlot Evaluation Model, is frequently used by the MPCA and other agencies to determine a feedlot's pollution potential, triggering certain regulatory responsibilities and determining eligibility for cost-share money. This program deals almost exclusively with surface water issues, only nominally with groundwater problems, and not at all with air quality problems.

The focus of the government programs on surface water stands in striking contrast to the source of much of the controversy in rural communities, which is over air quality and odor, particularly near large hog facilities. Of the 17 feedlot cases decided by the appellate courts since May of 1996, 15 were over hog facilities. (One related to a dairy, and one related to animal feedlots generally.)³⁷ The predominance of hog facilities in this litigation is partly due to the fact that the hog industry was going through a more active period of concentration over that time period, resulting in more permit actions to challenge, but it also reflects the fact that hog feedlots are perceived to create greater odor problems than dairy or cattle feedlots with the same animal units. (Indeed, animal units, as a measure of nutrient content, are themselves a water-related concept of less use in trying to compare the relative impact of different species on the air.) Odor was raised as a primary issue in most of these cases, reflecting a level of concern that is not mirrored in the government programs that address the environmental impact of feedlots.

It is not surprising that surface water runoff problems would first capture the government's attention. Surface water problems are very real, they can be severe, and they have by no means been solved. Moreover, when compared with air (and groundwater) problems, surface water issues are more obvious, and more quantifiable. The amount of nutrients or the level of bacteria in the receiving water can be measured, and the impact to aquatic ecosystems or to health is known. Air quality problems, especially odor, are harder to measure, and the health and environmental impacts are less clear. Moreover, the smaller farms common in the past simply did not create the same

concentrations of waste and the same potential air impacts that the larger new facilities can create. So, the focus on surface water problems over other problems (especially in some of the funding mechanisms), like air quality, is understandable. Still, this disparity of emphasis demands attention if we want to be confident that government is pushing the industry in the wisest direction, and if we want to make sure that in solving one kind of problem, we are not simply creating others. Having a more integrated, multi-media focus will also minimize the chances of the government being caught unprepared, as it was in the 1990s when it allowed the construction of large new hog feedlots with open lagoons and no methods of controlling the quite predictable odor and air quality problems that would arise. Clearly the emphasis should be placed first on the environmental and health priorities rather than on what is most convenient to measure or the areas where grant funding might be available.

There are a number of other issues on the horizon that may have an impact on the future of animal agriculture. They could be seen as problems or as opportunities, depending on how they are viewed, and how well they are prepared for. For example, the use of antibiotics and estrogen may impact the health of animals and humans, and methane generated by animal agriculture may be a pollutant and a valuable energy source.

These concerns should be factored into decision-making now, so that decisions about the future structure of animal agriculture in Minnesota can be economically sound in light of the environmental and public health issues that may emerge over the next few years. In other words, the challenge is not just to integrate our handling of the various problems presently before us, as discussed above, but to integrate our handling of today's problems with a realistic consideration of those we are very likely to face in the future

RECOMMENDATIONS

Identify a Limited Number of Priority Problems and Deploy an Integrated Compliance Management System to Fix Them

Focus on a Limited Number of Important Issues

With well over 30,000 operations that may affect the environment and limited staff and limited money, it is clear that not all environmental issues at all feedlots can be corrected now, or even in the next several years. Instead, we suggest that the state and federal agencies, in consultation with the producers and the public, identify two or three clear priorities that will be the focus of the feedlot efforts over the next few years. The process of identifying these priorities can help build the consensus needed about what are the central problems with animal feeding operations. Focusing on a few clear priorities should improve the use of limited agency technical assistance, cost-share, and inspection and enforcement resources. It should also provide increased clarity to producers about the environmental issues the state is likely to pay most attention to and allow the agencies and the producers to demonstrate real progress in improving environmental conditions.

Government environmental agencies have increasingly followed this approach. For example, the Department of Natural Resources has focused its ecosystem management efforts on specific lakes so that the resources can be brought to bear on solving high priority water quality issues. The U.S. Environmental Protection Agency has emphasized “place-based” environmental protection, again seeing it valuable to clearly define high priority problems, concentrate attention on those problem areas, and demonstrate real progress in solving the problems.

Having clear priorities does not mean having a narrow focus. The selection of priority areas should be informed by a broad understanding of the varied impacts that the industry, and the government’s programs, may have – including the environmental impacts, health impacts, economic impacts, and community impacts. These issues, all touched on by the GEIS, must be factored into the choice of priorities and tools.

Our review of animal feeding operations suggest that aspects of three problems could be the focus of governmental efforts—nutrient management, concentrating first on impaired waters, priority watersheds and source water protection; runoff into impaired waters or high priority watersheds; and controlling air emissions and associated odors. While these areas appear to be very important based on our research, they are suggested primarily for illustrative purposes. The principle point is that government agencies, in consultation with each other and with the public and producers, should select specific priority problems and work on solving them.

Agencies have taken some of the steps necessary to establish these priority areas. For example, the MPCA in its “Compliance Assurance Plan for Feedlots in Minnesota” identified the following priorities:

- delineated wellhead protection areas,
- karst areas,
- Lake Shetek, Chippewa River, Hawk Creek, OtterTail River, Swan River, Long Prairie and Watowan River watersheds.

While a final list should include a public process as part of identifying priorities, the MPCA list provides a useful model for focusing on particularly sensitive areas for both surface and groundwater. Similarly, the emphasis in the Department of Agriculture’s recent report on cost-share for 300 to 500 animal unit operations may be a way of further focusing on specific size operations within a priority issue area. This would allow the government agencies to meet environment and health priorities while also taking into account social and economic priorities related to the size and structure of animal agriculture in Minnesota.

Nutrient management. Better nutrient management has the potential to both reduce groundwater and surface water contamination, and save agricultural operations money by reducing the need for commercial fertilizers. Nutrient management has been recognized as a priority in EPA’s proposed new animal feeding regulations,³⁸ in the new MPCA feedlot rules,³⁹ and Minnesota’s nonpoint water pollution strategy.⁴⁰ Starting in priority regions, farmers could be encouraged to periodically test manure for nutrient content, to

test soils for nutrient needs, and to apply of manure at agronomic rates. This practice would help the farmer minimize input costs, protect both surface and groundwater, and could produce real, measurable progress over the next few years. This is a substantial effort that would require, among other things, expanded laboratory capacity, better producer education, and wider availability of technical advice on how to interpret testing results,⁴¹ and perhaps an expanded government capability for assisting producers to find uses for excess manure.

Surface water runoff. Surface water runoff is the most immediate environmental concern as the state tries to restore the quality of its lakes and rivers. There are a variety of established techniques for reducing or eliminating contamination from feedlots. What is required is a concerted effort, starting in priority watersheds, using an escalating compliance management approach to accomplish the task. This approach should start with good water quality base line data so that environmental progress can be measured and could include efforts to:

- ensure people understand the nature and extent of the problem,
- encourage local producers and citizens to assume “ownership” of the problem,
- provide focused technical and cost-share assistance,
- conduct periodic targeted facility inspections to ensure the new feedlot regulations are being implemented, and
- pursue at least some enforcement targeted toward serious violations, especially where violations occur despite the earlier efforts to provide assistance.

Air emissions and odor. Air emissions and odors are the most prominent public concerns related to animal feeding operations. Several animal feeding operations have exceeded recommended health risk values for hydrogen sulfide. A concerted effort to maintain air emissions such as hydrogen sulfide below health risk limits and to minimize odor problems could significantly increase public confidence in government programs and reduce concerns about animal feeding operations.

Develop an “Integrated Compliance Management System”

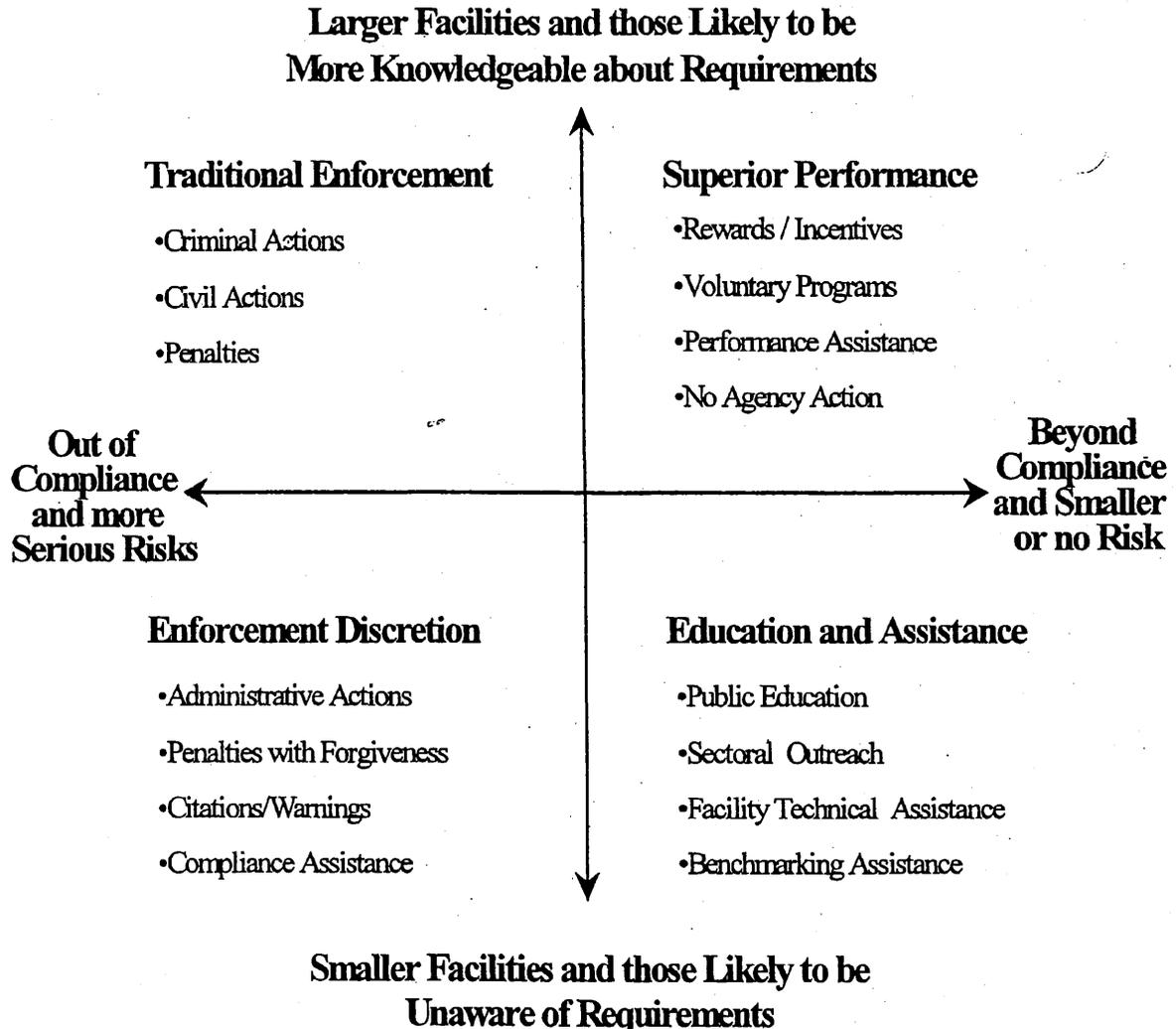
Once the problems that will be the focus of governmental efforts are identified, government agencies need to consider how each problem can best be solved and the tools that will help achieve this goal. As Professor Sparrow observed, the compliance tools must be selected or developed based on the nature of the problem rather than first picking an existing compliance tool and trying to make it work in the context of a particular problem.

Government agencies do have a wide range of tools from education to cost-share programs to enforcement that may be useful in solving the kinds of problems we have identified above. However these tools have not been assembled to date in a clear plan designed to solve specific problems. We believe that a “compliance management system” shaped for the unique characteristics of each key problem that government is addressing would be helpful in directing government efforts and building a better understanding by producers and the public of how government will approach the key problem areas.

We suggest several tools that could help form the “menu” for compliance management systems including: 1) education, 2) voluntary stewardship programs, 3) financial and technical assistance programs, 4) trading programs, 5) promotion of less concentrated forms of animal agriculture, 6) manure exchange and use, 7) self-audits, 8) inspections, and 9) enforcement. This list is not meant to be exclusive. Imaginative government officials, citizens or members of the regulated community may develop other ways of driving compliance and environmental improvement that can not be anticipated in advance. That is a strength of the concept. These systems should include a strategy for escalating the level of intervention based on factors such as previous education and assistance efforts, the sophistication of the facility, participation in voluntary stewardship programs, previous enforcement contacts and the seriousness of the environmental issues involved.

Figure 1 is a graphic depiction developed by the “Compliance Consortium,” a project of the University of Maryland School of Public Affairs, that shows how different types of compliance tools might be deployed depending on the factors discussed above. As the graphic indicates, a comprehensive compliance management system can be designed not only to help select tools that will help ensure minimum regulatory requirements are met, but also to provide incentives for regulated facilities to perform beyond compliance.

Figure 1: The Response Compass: Compliance Options for Managing Performance and Surpassing Standards



Education

Education is already a significant part of the role of government related to animal agriculture. But increased focus is needed in some areas, and existing efforts should be incorporated into a coordinated compliance management system wherever possible.

There are several aspects of education that are important to making progress on environmental issues related to animal agriculture. For example, producers' don't generally dispute the need to protect the environment, but they may dispute the link between their activities and environmental harm. Being able to present producers with objective evidence of the causal link between their actions and environmental damage could go a long way toward increasing voluntary compliance,⁴² and reducing the need for citizen complaints or government enforcement actions.

Even those farmers that are fully convinced of the link between their practices and the environment can use assistance to apply and interpret the data available to them. For example, farmers may need assistance using the results of soils tests to determine manure application rates. Counties or the other government agencies could be particularly helpful by working with farmers on manure management issues. Farmers might also benefit from better information about cost-effective methods of solving environmental issues, and economically viable alternative farming practices that do not require concentrated feeding operations.

Similarly, good data about the quality of the local air and water, and about the effectiveness of the various practices farmers follow to protect the environment, would be of great value to the public. Such information will not make conflicts over problems like odor go away, of course, since those are based on directly felt impacts, but it can help calm public fears about the perceived hidden impact of animal agriculture. Moreover, just as the roundtables demonstrated that many producers still do not appreciate the importance of the environmental issues involved with their feeding operations, they also demonstrated that many citizens do not understand the changing economics of animal agriculture. Information about the economic challenges farms are facing could help ease some of the conflict. Similarly, some citizens do not yet recognize that, when properly used, manure can be a more natural and environmentally benign way to fertilize crops than the apparently less "messy" commercial fertilizers.

Compliance management systems should assess the current educational efforts, the needs of producers and citizens and the importance of education in resolving particular problems in order to develop an education strategy that helps build societal values, supports better economic results and increases the likelihood that the regulatory program will achieve its objectives.

Voluntary Stewardship Programs

Businesses, states and the federal government have increasingly used voluntary stewardship programs as *one* element in a strategy to improve environmental performance. These programs reflect increased consumer and public pressure to build or maintain a better public image, especially in some industry segments such as the

chemical industry; changing values among many industry officials and the related fact that environmental performance is becoming a more “mainstream” idea; and the limited resources available to deal with environmental issues, particularly in sectors with a large number of smaller facilities.

The chemical industry developed the “Responsible Care” program almost a decade ago to respond to public concerns about environmental management by chemical manufacturers. Responsible Care establishes basic performance criteria as well as several practices beyond those required by law that a company must adhere to as a member of the American Chemistry Society. The U.S. EPA recently created a new “Achievement Track” program that provides public recognition, and may allow some regulatory flexibility, for facilities that have a sustained record of environmental compliance, achieved environmental results beyond what the law requires and commit to specific additional environmental progress. Several states have similar programs. These voluntary programs work best in the context of a firm but flexible regulatory system⁴³ and a credible threat of enforcement for noncompliance.

In Minnesota, both the Pork Producers Association⁴⁴ and the Minnesota Milk Producers Association⁴⁵ have developed voluntary agricultural stewardship programs. These programs still involve too few producers to have a major impact on priority environmental problems but provide a useful model that could make major contributions to better feedlot management. In addition to producer-sponsored voluntary programs, Minnesota organizations have advocated a concept known as “whole farm planning”⁴⁶ that encourages farmers to integrate their economic, family and environmental goals into a whole farm plan.

Voluntary stewardship programs, whether industry-based, public interest-based, or government-based, can play a significant role in helping to address environmental problems if they have sufficiently strong entry requirements, relatively low transaction costs and good monitoring programs. They can be particularly valuable in building public confidence if they use third parties to verify compliance with the program. They build on the land ethic, strongly held by many farmers; create an important sociological dynamic based on willing compliance; could help reduce the increasing public concern about agricultural operations; and eventually could produce a market advantage for producers participating in the stewardship program if consumers or processors begin to recognize or prefer stewardship operations.

For example, the University of Minnesota and the Department of Agriculture are developing a new program known as “MinnCert” to better market Minnesota agricultural products, at least in part through a product differentiation strategy. This is a quality assurance program aimed at small and medium sized operations that establishes standards for raising crops and animals.⁴⁷ Environmental performance may be an issue potential customers care about and could be incorporated as part of this certification process.

Government can foster the stewardship efforts in several ways. First, government can work with producer organizations to ensure that the stewardship programs adequately

address key environmental issues. Second, if these private stewardship programs have adequate standards, government could take participation in these programs into account in providing cost-share assistance, setting priorities for inspection, as a factor in determining whether an enforcement action should be initiated and the amount of any penalty that should be assessed, or in other ways. By doing this, government may encourage broader participation in stewardship programs.

Minnesota state government can also consider devising its own stewardship programs to promote environmental performance or adapting existing or new voluntary programs to include environmental performance elements. Wisconsin has developed a voluntary agricultural stewardship program known as the "Environmental Stewardship Initiative" based on adapting environmental management systems to farming operations. Illinois is in the process of designing a voluntary feedlot stewardship program to function as an adjunct to its regulatory efforts. Similarly, U.S. EPA and the United Egg Producers, a nationwide farmer cooperative, recently entered into an agreement under which the participating members qualify for a general water pollution permit (rather than a site-specific permit) if they develop and implement an environmental management system that produces superior environmental performance. The California Wine Institute is developing a producer stewardship program that is also based on implementing environmental management systems by participating growers. And Australia and New Zealand are experimenting with the use of environmental management systems as a stewardship tool for a variety of agricultural operations. One of the advantages of stewardship programs is that they often cover both basic compliance requirements as well as other environmental issues that are not directly regulated.

Minnesota government agencies should consider as part of a compliance management system working with industry to ensure that voluntary programs developed by producer organizations are comprehensive and credible, supporting significant expansion of comprehensive and credible industry-based voluntary programs, working with other organizations to support good management systems such as "whole farm planning," and crafting a state sponsored voluntary stewardship program that would encourage operators to make significant progress on priority environmental problems.

Financial and Technical Assistance

Significant financial and technical assistance is available to deal with environmental issues related to animal feeding operations. This funding should be integrated into the state's compliance management program and focused, to the extent possible, on solving critical environmental problems. In Chapter 2 of this TWP, entitled "Impact of Grant, Loan, and Tax Programs on Animal Agriculture," we discuss the major grant and loan programs available to help Minnesota feedlot operators address environmental problems. These programs include nearly five million dollars a year in grants from state and federal agencies, over three million dollars a year in loans, and technical assistance to help design responses to pollution problems. We point out that the amount of grant money is inadequate to provide the 75% cost-share currently required by state law, and that the focus of existing programs on surface water should be broadened to some extent to include other impacts.

One interesting new approach to cost-share funding is found in the "Conservation Security Act," a proposal for amending federal farm policy. While the Act would apply to all types of agriculture, many of the ideas would be applicable to animal agriculture. The Act provides a three-tier approach to conservation payments for farmers:

Tier I covers a wide range of basic land management and vegetative conservation practices. Within tier one, the more practices chosen with significant positive natural resource and environmental benefits, the higher the payment.

Tier II incorporates tier one practices, but adds practices that generally require a change in land use that, while important to conservation, may result in less income to the farmer. These include diversified, resource-conserving crop rotations, conversions to grass-based farming, buffer practices to enhance soil and water quality, cover cropping, and restoration of wetlands, native prairie, and wildlife habitat. Utilization of these practices will provide compensation at a higher level, in recognition both of the additional conservation value and the economic value foregone.

Tier III participants would include practices from the first two tiers and incorporate a whole farm, total resource plan for maximum sustainability [linking the voluntary idea of Whole Farm Planning discussed earlier with cost-share dollars to encourage wider use of the concept and also linking economic and value-based behavioral motivators]. These participants would be eligible for the largest program benefits in return for developing and implementing whole farm plans that account for all pertinent natural resource and environmental impacts.

Minnesota sponsors of this concept included Representatives Gutknecht, Peterson and Oberstar.

Trading Programs

Minnesota was the first state to authorize a trade that allowed an industrial facility to continue to emit pollutants from its "point source" discharge in return for a significantly larger reduction of the same pollutant from upstream nonpoint sources. The industrial facility was willing to execute the trade because it could buy upstream reductions at a cost significantly lower than the cost of reductions at its own facility. As more point sources in Minnesota face tighter phosphorus limits, trading schemes are likely to be more attractive. Trades are authorized only in circumstances where emissions cause chronic regional effects rather than acute local environmental effects.

A recent study involving the Minnesota River points out the potential economic benefits from a trading program directed at phosphorus. The analysis indicated that 51 to 69 percent of the phosphorus in the water came from agricultural sources. The study then estimated the costs of four approaches to reduce nutrients in the river:

- imposing tighter performance standards on the point sources
- providing farmers with conventional subsidies to adopt "best management practices" to promote conservation
- imposing performance standards on the point sources, but allowing them to trade with nonpoint sources (the point source would pay the nonpoint sources to make most of the reductions, and would need to buy three "estimated" pounds of phosphorus reduction for each pound they avoided reducing on-site)

- imposing 50 percent of the net reduction needed on the point sources and 50 percent on farmers. To achieve the former, the point sources would be allowed to trade with one another and with nonpoint sources; to achieve the latter, public funds would subsidize farmers to implement conservation measures. Unlike traditional BMP programs, however, the programs would be performance-based, and targeted at achieving the highest reductions possible per dollar.

The study shows that the third and fourth options are the most cost-effective ways to reduce nutrients. The price per pound of phosphorus removed would be "\$19.57 for the traditional regulations; \$16.29 for the traditional BMP subsidies; \$6.84 for point/nonpoint trading; and only \$4.36 for a program combining trading and targeting subsidies."⁴⁸ A study of the trading system set up under the Clean Air Act Amendments of 1990 to reduce sulfur dioxide emissions from coal-fired electric generating plants demonstrated similarly dramatic cost reductions.⁴⁹

Trading programs may bring additional financial resources to nonpoint reduction efforts that could supplement cost share funding. As a result, the animal feeding operations compliance management system should consider the role nutrient trading could have in achieving desired environmental goals.

Promoting Economically Viable Options to Concentrated Feeding Operations

Concentrated feeding operations have increased concerns about a variety of environmental issues. New rules and better technology have helped address these issues. However, in addition to the effort to "control" potential pollution from concentrated operations, the University, the Department of Agriculture and other agencies may be in a position to identify economically viable alternatives to animal feeding that do not involve concentrated operations. These methods fall under the label of "sustainable agriculture". These alternatives may be particularly appropriate for areas with sensitive geology or sensitive water bodies.

Minnesota established an Energy and Sustainable Agriculture Program, within the MDA, in 1989. This program provides a clearinghouse of information on sustainable agriculture methods. It makes available grants to fund demonstration projects, and provides low interest loans for investments in sustainable practices. It plays an important role in helping new ideas take hold, including ideas like rotational grazing that hold promise for addressing some of the problems associated with feedlots. The Energy and Sustainable Agriculture Program, and others funded by the state like the Minnesota Institute for Sustainable Agriculture, provide a basic infrastructure supporting agricultural sustainability. Despite the existence of these programs, though, the concept of sustainable agriculture has yet to penetrate widely into mainstream agriculture, or even into some of the government's traditional agricultural programs.

One of the bottlenecks to the adoption of sustainable methods of agriculture may simply be the lack of technical assistance from the government. Currently, if a farmer wants to build a new manure basin, there is a well-developed system in place to make it possible, including a team of engineers provided by the state Board of Water and Soil Resources and the federal Environmental Quality Incentive Program to design the needed changes if

they help address environmental problems. If public engineers are not available, the farmer can get assistance from the private companies that design and construct such facilities. However, if the same farmer wants to implement a system of rotational grazing, for example, he or she will have a much harder time finding someone to provide the necessary technical help or to provide financial help to deal with potential cash flow issues as the new practice is adopted. Many sustainable farming innovations involve changes in farm management rather than the purchase of an expensive new product or system. As a result, the private sector has less reason to step in and provide help, and the benefits of the government taking on this role instead are comparatively greater. The state should consider funding additional staff positions to provide this kind of on-site training and assistance needed to help producers develop alternatives to concentrated animal feeding operations.

Manure Exchange and Use

In some areas of the state adequate land exists to spread manure from concentrated feeding operations at agronomic rates and landowners are eager to have the manure spread on their land. In other areas, finding land to spread manure is more difficult, increasing the chances that excess manure may be applied. A compliance management system focused on nutrient management issues could include ways that government might assist agricultural operations to deal with excess manure. One possible approach would be for counties to run a computer-based manure exchange similar to industrial waste exchanges that the state has run for many years through the Office of Environmental Assistance.

Government can also play a role in promoting alternative uses of manure, particularly in the realm of energy production, an area long subject to government involvement and planning. For example, last year the legislature considered allowed chicken waste to qualify as an alternative energy source facilitating its use in an electric generating facility.⁵⁰ In 1998, the legislature expanded the loan program implemented by the Energy and Sustainable Agriculture Program to provide \$200,000 for no-interest loans for demonstration projects for manure digesters. The AgStar program sponsored by U.S. EPA, the U.S. Department of Agriculture and the U.S. Department of Energy is also promoting manure digester technology. By turning methane, a potent greenhouse gas, into a source of energy, manure digesters are considered to be a very promising technology. They can also greatly reduce other air pollutants and odor, and by rendering the nutrients in the manure more accessible to plants, they can reduce runoff problems.

The Energy and Sustainable Agriculture Program and the Minnesota Pork Producers have both investigated the use of manure digesters. Under current market conditions, digesters do not appear to be economically feasible because the price of energy in Minnesota is still relatively lower than in other parts of the nation, and in Europe, where the technology is in greater use. Manure digestion could help the state meet its environmental and energy goals—much as the ethanol program now does with the help of some state subsidies.

A compliance management system could consider ways to promote greater experimentation with this technology, including direct subsidies, tax breaks, or a

requirement that utilities purchase the energy from methane digesters at a price that would allow farmers to make long-term investments in digesters. While this would spread the costs of methane digestion on to society at large, many of the benefits – like cleaner air and water, and a homegrown energy supply – would also flow to society at large.

A compliance management system could also consider whether counties should build digesters on a community basis, just as they handle solid waste and municipal sewage on a community basis. Depending on the concentration of wastes in a region, community digesters (which could be privately built and run, and payed for with user fees) might allow farmers to take advantage of this technology at a lower unit price than building their own digesters. Operating on a larger scale, the digesters would probably achieve greater efficiencies, and farmers would not need to develop their own expertise in this technology

Self-Audits

Minnesota law encourages regulated facilities to examine their own operations, identify problems, report the problems to the state and promptly correct the problems.⁵¹ The payback is that self-reported violations are exempted from penalties in most cases.⁵² The MPCA has developed self-reporting checklists for several sectors to help facilities meet the requirements of the law. The MPCA and producer groups could develop self-reporting checklists designed to work with the new feedlot rules for specific types of animal feeding operations as part of a compliance management plan. This would allow producers to more effectively use the self-audit provisions in state statute and alleviate concerns about enforcement while improving environmental performance.

Inspections

The Legislative Auditor found that the MPCA and the counties conducted very few inspections of animal feeding operations except in response to complaints or as part of an application for a new or expanded operation.⁵³ In fact, the Auditor found that site visits were not common even as part of a permit review.⁵⁴ A field presence, either to deliver assistance or to determine compliance, is a critical element of any credible environmental program. As we noted earlier, the fact that most inspections have occurred only in response to complaints has led to overreliance on citizens with the attendant consequences discussed above. A compliance management system should include a significant number of targeted inspections that are driven by environmental priorities and by potential compliance problems rather than solely by complaints. The Governor's 2001 budget and the MPCA's recent report to the legislature recognize this fact and propose new funding and staffing levels at the state and county level that will allow targeted inspections.⁵⁵

The MPCA (and delegated counties) will never have the resources to inspect all feedlots. However, for the credibility of the system and the protection of the environment, they should establish objective criteria for targeting their regulatory resources to the greatest environmental threats. There are some obvious means of doing this, such as focusing on the largest feedlots first, or those with unpermitted earthen basins. However, they should

also use the results of environmental monitoring to determine the areas of greatest environmental impacts, and track down the sources of those impacts.

Enforcement

A credible threat of enforcement is also important to protect the environment from the very small percentage of people who will not comply with the law except for this threat, to ensure that regulations are taken seriously, and to ensure fairness and a level economic playing field. A good inspection program is a prerequisite to a sound enforcement program.

Our research surfaced several important issues related to enforcement. First, there appears to be a much greater fear of enforcement among producers than expected given the actual number of enforcement cases initiated each year. This may be due to several well-publicized criminal enforcement cases involving discharges to water bodies brought by a few counties in the mid-1990s. These cases, especially the fact that they were criminal cases, may have created a sense that there was a high risk of enforcement for feedlot operators. The fact that farmers were not used to dealing with the MPCA or DNR conservation officers may have added to the apprehension. The reality is that MPCA has initiated only 86 enforcement actions over the last 6 years, an average of only 15 each year. Most of these cases have involved discharges to surface water or unpermitted construction. While some enforcement is occurring, the numbers indicate that it is relatively rare and that most farmers that obtain permits and avoid direct discharges to water have little reason to fear enforcement.

Some farmers noted the opposite problem; that there were poor operations they knew about that received no enforcement attention. These farmers were worried that the poor operators gave the industry a bad image.

Another concern that arose from our interviews was the sense that state and county feedlot staff do not feel there is public support for their inspection and enforcement activities. This is not surprising given the nature of the conflict surrounding animal feeding operations that we discussed earlier and the level of legislative intervention restricting the authority of government agencies. The result may be reluctance to pursue enforcement options even when they are clearly appropriate. This situation may also contribute to what the Legislative Auditor found has been inconsistency among regional staff in pursuing enforcement actions.⁵⁶

We believe an effective compliance management system must include a credible threat of enforcement targeted towards priority problems. In most cases, enforcement should only be pursued as part of a clear strategy to escalate intervention starting with assistance efforts, especially for smaller operations. And it should be seen as only one of many tools that are used to address priority problems. Once the role of enforcement in the compliance management system is determined, the circumstances under which enforcement is likely to be used (and how it fits in to the broader compliance management plan) should be communicated much more clearly than it has been to the public, to producers and to MPCA and county feedlot staff. This approach should reduce fear of the mythological beast of enforcement, make it clearer what activities will not be

tolerated, and provide a better sense to enforcement officials of when it is appropriate to initiate actions.

Coordinate Federal, State and Local Programs

Consider the Proposed Federal Feedlot Regulations and Maintaining NPDES Delegation

The Federal environmental role in regulating animal feeding operations has become more prominent as the United States Environmental Protection Agency has increased its focus on nonpoint sources of water pollution and as notorious releases from animal waste lagoons have occurred over the last few years. EPA estimates that 60 percent of the pollution in rivers and 45 percent in streams comes from agricultural sources including feedlots.⁵⁷ EPA recently proposed significant new regulations that would apply to all feedlots requiring a National Pollutant Discharge Elimination System (NPDES) permit.⁵⁸ EPA is proposing two options for defining concentrated animal feeding operations (CAFO), one of which would lower the current 1,000 animal unit threshold (using the EPA definition of animal units which differs from the definitions adopted by the Minnesota Legislature) to 500 animal units. The proposal includes several important new provisions including requirements that:

- each CAFO prepare and implement a site-specific nutrient management plan, that is prepared or approved by a certified planner, that identifies the nutrients generated at the facility, determines the amount of nutrients needed by the planned crop rotation, and establishes agronomic rates of manure application,
- would eliminate the 25-year, 24 hour storm permit exemption,
- manure recipients must certify that they are land applying at agronomic rates or, in the alternative, the CAFO must maintain records of the manure transferred,
- processors that exercise substantial control over contract growers be co-permittees,
- a CAFO must maintain its permit until the facility is properly closed including proper closure of manure storage,
- CAFOs perform an assessment to determine whether a hydrologic link exists from groundwater beneath the feedlot to surface water, and
- more information about CAFOs and manure management plans be available to the public.⁵⁹

Many Minnesota producers, like producers in other states, assert that if state regulations are too stringent, animal feeding operations will simply move to other states. The proposed new EPA regulations should reduce this concern if the regulations are adopted since they will establish a stronger national minimum that all producers meeting the CAFO definition will have to meet.

The increased emphasis by EPA on animal feeding operations does raise concerns about those aspects of Minnesota's law that are different from the EPA requirements. Among the more prominent differences are the definition of animal units,⁶⁰ the 60 day requirement for issuing or denying a feedlot permit,⁶¹ and the restriction on imposing permit conditions in a permit that are not specifically required by law or agreed to by the

permit applicant.⁶² EPA has the authority to withdraw its delegation for Minnesota to run the NPDES program if the state does not operate a program deemed to be substantially equivalent to the federal program. If the NPDES program were withdrawn, EPA would then have to issue all NPDES permits in the state moving those decisions from MPCA regional offices to Chicago. Although withdrawal of the entire NPDES program would be difficult, in 1998 and 1999 EPA held up delegation of new programs to the MPCA over concerns with the state's environmental audit legislation. Only when legislative changes satisfactory to EPA were made did delegation of these programs resume. The state should carefully consider the importance of these potentially incompatible provisions in light of the importance of running its own NPDES permitting program as part of its overall strategy in dealing with animal feeding operations.

Develop a Stronger Sense of Team Work between MPCA, County Feedlot Officers and Technical Assistance Staff and Conduct Periodic Constructive Audits of County Feedlot Programs

Currently, 53 counties are delegated to manage the feedlot program.⁶³ Given the size of the feedlot universe, the variability of local conditions and the need to work with local residents as well as local producers, the county programs are critical to making progress on environmental issues related to animal feeding operations. The MPCA recognizes this fact and is working on increasing the number of delegated counties and has proposed funding increases reflected in the 2002-2003 budget to make delegation more attractive to counties.⁶⁴

To be effective, the relationship between MPCA and the counties (both county feedlot officers and county technical assistance staff) must reflect a "team" effort focused on joint priorities that can be modified to meet local needs. Our discussions with county feedlot officers in four counties did not always demonstrate the close connection between the programs that we believe is needed. The MPCA realizes that a "coordinated partnership" is required with the counties for the feedlot program to be effective⁶⁵ and has proposed adding two staff positions to focus on "partnership building, training, auditing and grant management" with counties.⁶⁶ This is an important undertaking. The MPCA should closely monitor this effort with the goal of creating a clear sense of "team" between MPCA and the counties over the next two years.

The MPCA is ultimately responsible for the implementation of the feedlot program, but the Legislative Auditor has noted that there are wide differences among county feedlot programs, and in the past the MPCA has done little to assess the performance of delegated counties.⁶⁷ Several steps are necessary to ensure that counties, as well as MPCA, are accountable for their work. Implementing a better information management system suggested below and making that information available to the public will help, as will the new feedlot registration system that should better identify the feedlot universe throughout the state. A closer working relationship between counties and the MPCA also should increase accountability and improved training will help counties do a better job. Finally, we believe that MPCA should conduct periodic constructive program audits of county programs to assess the status of the programs and help the counties identify ways to improve their programs.⁶⁸ Such an auditing process seems to be anticipated in

MPCA's recent report to the Legislature on the 60-day permitting requirement.⁶⁹ MPCA staff must be well trained in how to do constructive auditing to allow this process to strengthen county programs without endangering the sense of team work needed to get maximum results. Of course, if counties are not performing and do not respond to constructive reviews, the MPCA should be ready to terminate county delegation.

Improve Intergovernmental Coordination

Significant intergovernmental coordination occurs in a number of areas related to animal feeding operations. For example, MPCA regional feedlot staff, county feedlot officers, NRCS staff and Soil Conservation Service staff often coordinate their activities. Several local, state (including MPCA, the Department of Agriculture, the Department of Natural Resources and the Board of Water and Soil Resources) and federal agencies, the University of Minnesota and the Minnesota Lakes Association worked together to produce the state's new nonpoint pollution strategy. And the Feedlot and Manure Management Advisory Committee (FMMAC) is made up of several agency representatives, as well as representatives of the University of Minnesota, producers and public interest organizations.

Still, if the state is to build a consensus on the key environmental priorities, consider the economic consequences in dealing with these issues, and effectively implement a comprehensive compliance management system, additional coordination will be required on two levels.⁷⁰ First, there should be a high level inter-agency planning process that includes representatives from local, state and federal agencies and the University of Minnesota. The completion of the GEIS and the beginning of its implementation phase would be a good opportunity to build on the findings of the GEIS and continue momentum for more effective, more comprehensive and more efficient solutions to the priority environmental issues surrounding animal feeding operations. Second, this inter-agency team must have access to ideas and advice from outside parties including producers, public interest organizations, citizens and other interested parties. A somewhat broader mission for FMMAC, as well as reconsideration of whether FMMAC includes appropriately balanced representation, may be one way to provide this outside perspective.

Public interest groups have expressed concern about the availability of staff and funding to participate in advisory activities such as FMMAC. This is a serious concern throughout the country as public interest groups are increasingly asked to participate in stakeholder groups, especially since it is often difficult to obtain foundation funding for this type of work. Recognizing this problem, Governor McCallum of Wisconsin included grant funding in his 2002-2003 budget so that public interest organizations can participate in the state's proposed new voluntary corporate leadership program known as the "Green Tier."⁷¹ Minnesota should consider providing some grant funding for this purpose so that a broader consensus can be developed on feedlot management issues.

Implement the New MPCA Permit Strategy and Staffing Strategy

The new MPCA feedlot rules include some very important tradeoffs. Given the large number of regulated facilities, tradeoffs are probably necessary to provide a rational

management system for concentrated animal feeding operations. The first of these tradeoffs is clear—generally applicable technical standards in return for a very streamlined permitting process. Facilities with less than 300 animal units simply need to register with delegated counties or the MPCA, unless the facility has been identified as a pollution hazard. This category encompasses close to 30,000 animal feeding operations, or about 71 percent of all facilities in the state.⁷² Facilities with 300 to 999 animal units require a “Construction Short Form” permit that will be streamlined because the permit conditions are contained in the rule. This standardized document, similar to a building permit, is expected to cover an additional 6,000 plus facilities or about 16 percent of all animal feeding operations.⁷³ Even for facilities with more than 1,000 animal units (about 800 facilities), the MPCA is working on a general NPDES permit that will be used by existing facilities that meet technical standards and new facilities that have gone through environmental review.⁷⁴

By trading off permitting flexibility for permitting simplicity MPCA is able to establish some regulatory relationship with a very large number of facilities. For example the registration process should allow much better tracking of the 30,000 smaller operations than the current spotty feedlot inventory approach. It sacrifices, however, the ability to set more stringent conditions for particularly hazardous locations or more lenient conditions for areas where the hazard is much less than normal. It also makes it more difficult to take into account new technology that might significantly change the ability to manage environmental problems since the new technology might not meet the technical standards in the rules. For the 36,000 animal feeding operations under 1,000 animal units the value of having good standards and a streamlined permitting process that does not chew up most or all of the MPCA and county staff time probably outweighs the concerns about flexibility. Carrying this tradeoff to facilities above 1,000 animal units raises more concerns since flexibility to respond to specific conditions and new technology may be more important and the number of facilities is much smaller.

The second tradeoff made in the MPCA rules is between speeding up permitting and opportunities for public involvement. For animal feeding operations under 1,000 animal units (and perhaps for those over 1,000 animal units which qualify for a general NPDES permit) that comply with the technical standards in the MPCA rules and that are not considered a pollution hazard (a feedlot that “presents a potential or immediate source of pollution to waters of the state as determined by inspection by a county feedlot pollution control officer or agency staff”⁷⁵), no opportunity for a public hearing is provided.⁷⁶ If an animal feeding operation proposes to construct or expand a facility to a capacity of 500 or more animal units, the owner is required to notify each resident and property owner within 5,000 feet of the perimeter of the proposed feedlot of the proposal. However this requirement does not trigger any type of public hearing.⁷⁷

Part of the reason the MPCA developed the streamlined registration and permitting process was to allow state and county resources to be directed towards improved education, assistance, inspection and enforcement (establishing a “real” field presence) and to increase coordination between MPCA and delegated counties.⁷⁸ The Governor’s 2002-2003 budget includes funding to expand MPCA field staff and to provide new

funding for delegated counties. This funding is critical to creating a credible feedlot management program that can reasonably be expected to implement an integrated compliance management plan such as we suggested above.

Provide New Opportunities for Public Dialogue and Reexamine Limits on Public Redress

Facilitate an Informal Public Dialogue for Large New or Expanded Animal Feeding Operations

Public meetings and hearings are an important avenue for public involvement in the permitting process.⁷⁹ However, these approaches are usually quite formal and can be rather intimidating for many citizens as well as project proposers. Further, permit related meetings or hearings often occur late in the development of a project making changes difficult or expensive in many cases. In other words, formal means of public involvement are necessary, but not sufficient to produce more democratic and more acceptable outcomes. Increasingly, businesses, government officials and environmental advocacy organizations are recognizing the value of informal, early discussions about a proposal as a way of spotting and resolving concerns before they become issues in a formal legal process.

A broadly representative group convened by the Aspen Institute in 1995 and 1996 examined the issue of informal stakeholder dialogue related to environmental issues and concluded

Stakeholder processes (as a collaborative venture) are a new and important aspect of governance in America. Indeed, they are an important supplement to representative government and to the proper exercise of legal and regulatory authority. Properly structured, stakeholder processes can:

- enhance public participation;
- enrich the information basis for effective decision making;
- ensure greater accountability to workers and the community;
- ensure the ownership necessary for decisions to be honored and implemented; and
- sustain the democratic principles of our society.

Stakeholder processes have value in that they can yield benefits in time, cost and closure (compared to the adversarial nature of current regulatory processes).⁸⁰

While stakeholder processes are not a cure all, in many instances they can help resolve issues early and prevent disputes from growing into legal confrontations. Stakeholder, as well as other forms of public involvement outside of the formal legal hearing context, can and should be scaled to the size of the operation and the nature of issues involved so that the public involvement process itself does not discourage government or producers from utilizing this approach to problem solving. They can range from informal discussions to fairly formal recurring dialogues. Larger stakeholder processes typically benefit from the

use of a neutral facilitator. However, it is crucial that any facilitator be well trained and familiar with the issues involved in a discussion since poorly facilitated dialogues can aggravate rather than improve the working relationship among participants.

In controversial cases, we found that citizens were often very uncomfortable with the formal means of public involvement surrounding state and local permits and believed that these involvement opportunities came too late in the development of the project to have much affect in the outcome. They said that they came away from the process dissatisfied that no commitment to the final government decision had been made. While there are certainly some people who will not be satisfied with any outcome short of a permit denial, many of the citizens we talked with seemed most interested in having their ideas considered in the design or operation of a facility, not just stopping a facility from being approved. They uniformly supported the idea of a more informal, earlier dialogue with the regulatory agency and the producer as a way of addressing issues and building a consensus on approval of a facility.

Producer organizations should consider developing “good neighbor” approaches that support early notice to neighbors of significant feedlot expansions and train their members or provide professional assistance to their members on ways to convene informal discussions related to proposed expansions. Similarly, the state should develop a capacity to facilitate informal public dialogues related to feedlot expansions, at least larger scale expansions, and make this service available on a voluntary basis to producers. The state should also provide producers information on how these informal dialogues would work and the potential benefits from building consensus and avoiding conflicts through early, informal public dialogue.

Liability/ Public Redress

Given the high degree of controversy over feedlots in recent years, there has been relatively little litigation, especially litigation brought by neighbors or members of the public opposed to a feedlot. Citizens with objections to the operation of feedlots may involve courts in the matter in two primary ways. First, if the feedlot is undergoing a permitting process, citizens may appeal the decision of the MPCA or the county. This avenue is generally only available for new or expanding feedlots, since this is when permitting requirements are usually triggered, and there is a decision to appeal. A computer search of Minnesota appellate court records between May of 1996 and February of 2001 shows only 17 feedlot cases reaching the appellate courts. Of these, 11 involve farmers suing counties or townships, usually for denying them a conditional use permit (farmers lost their suits in 8 of these cases). The remaining 6 were brought by feedlot opponents, mainly trying to get the MPCA to block, or impose additional requirements on, new or expanding feedlots (citizens lost 5 of these).

Second, citizens may bring a direct nuisance action against the feedlot, though like most agricultural states, Minnesota adopted a “right to farm” law in the early 1980s, which limits the applicability of nuisance laws to farms.⁸¹ Minnesota’s right-to-farm law states that a farm cannot be considered a nuisance after two years of operation, if it wasn’t a nuisance when it began operation. This is intended to shield farms from suburban

expansion, and the complaints of the newly arrived homeowners. There are, however, some major exceptions to this protection. If the farm expands by 25% or more, the two-year period begins again at the time of the expansion. Moreover, the protections do not apply if the nuisance conditions result from operations that are negligent, contrary to commonly accepted agricultural practices, or contrary to state or local laws or permits. The Department of Agriculture's recent report on the costs of bringing farms into compliance with the new rules estimates that about 40% of farms are operating contrary to law.⁸² The protection also does not apply to swine facilities over 1000 AU, or cattle facilities over 2500 AU. There are no size-based exclusions related to dairy or poultry.

It is difficult to assess the impact of this law. Nuisance lawsuits against farms were exceedingly rare even before adoption of the right to farm protections, and there have not been any that reached the appellate level since their adoption. This is surprising, given the controversy surrounding very large new feedlots, especially swine facilities, and the fact that the right-to-farm law does not shelter such facilities. It may be that citizens believe the right-to-farm law is actually broader than it really is. It may also be that these suits are not being brought because odor is so often the nuisance at issue, and because of the perceived difficulty of proving an odor nuisance. While "nuisance" is an inherently subjective concept and should not need to be quantitatively proven, courts may be reluctant to find damages or order relief based on a form of harm that cannot be photographed or recorded, and which is notoriously difficult to measure. Of course, any litigation is likely to be expensive.

Another potential avenue of public redress against polluting feedlots would normally be the Minnesota Environmental Rights Act (MERA), which gives citizens the right to bring civil actions to protect the air, water, and other natural resources from "pollution, impairment, and destruction." However, by excluding "family farms," "family farm corporations," and "bona fide farmer corporations" from the statute's definition of "person," MERA effectively excludes feedlots from direct citizen action. Farm operations are the only operations in the state so excluded.⁸³

Ideally, the Integrated Compliance Management Plan discussed above, along with additional regulatory resources for the MPCA and counties will resolve most of the environmental and nuisance issues related to feedlots. Private litigation is always difficult and expensive for both parties to the litigation, and an extensive amount of it suggests a serious failure in the regulatory structure. However, the possibility of direct action by citizens remains an important safeguard in non-farm contexts, and it is difficult to see a rationale for a blanket exclusion of all farms from MERA, particularly an exclusion that is so much broader than the right-to-farm protections.

Given the large number of feedlots in the state, and the limited resources available to regulate them, citizens should not be blocked from bringing the kinds of MERA actions they could bring in any other context. As a practical matter, the state relies very heavily on citizens to help it regulate feedlots, as we discuss above; if we trust citizens to play this role, we should also trust them with the right to sue under MERA. If the legislature is concerned about unwarranted litigation bringing great harm to small farms, it could

limit MERA's applicability to large facilities, as it has limited the state's nuisance laws, or otherwise restrict its applicability.⁸⁴

Improve Information Flow and Availability

Better Environmental Outcome Measurement and Reporting

In our discussions with farmers, the public, and even county staff about the role of government in regulating feedlots, there was surprisingly little discussion about the condition of the environment itself. When asked, many citizens believed the environment was being gravely threatened by animal agriculture, while farmers and county officials generally believed the threat was less dramatic. There was very little objective information offered by anyone to support their beliefs, partially because they lack data about the actual condition of their surface water, groundwater, and air in specific cases or at specific locations. This lack of data occurs in some cases because the measurements haven't been made, and in some cases because they have not been widely disseminated.

Measurement is key to the priority setting process we recommended earlier. First, it is important to have good ambient data to understand the condition of environmental resources so that appropriate priority areas can be identified and so that producers and the public understand the nature of the problem in the area. Second, it is critical to public confidence and to management of our limited governmental resources (both money and time) that progress in addressing the priority problems can be measured. This allows the public to see that change is occurring and it allows government to look at the various tools they have deployed to understand which of those tools contributed to improved environmental quality. Finally, better measurement allows strategies to be adjusted and new priorities to be established if sufficient progress has been made on a specific issue or in a specific area.

There are substantial efforts underway to gather information about Minnesota's environmental quality, particularly relating to water. Minnesota has been working for years to gather relevant data, and to integrate the various water monitoring and management programs within the state. However, periodically assessing whether the state has an adequate water and air quality monitoring network is critical to developing a stronger consensus on what needs to be done to address environmental issues associated with animal agriculture. In addition, the surface water, groundwater, and air quality data should be integrated with the new feedlot registration program and made readily accessible to farmers, regulators and the public in an easily understandable form. For example, the Minnesota Center for Environmental Advocacy has been working in the Straight River watershed to combine ambient water quality monitoring data with other data using a geographic information system that can better pinpoint problem runoff areas. This allows the producers, regulators and citizens to look for ways to reduce runoff problems in targeted areas.

Gathering, integrating and disseminating this environmental data is key to many of the additional recommendations of this report. These outcome measurements are an important element in identifying priorities, and a way to integrate the efforts of the

various government programs around those priorities. They could be used in helping to assess cumulative impacts of proposed feedlots undergoing environmental review. They would be central to the education and stewardship programs discussed below, and would inform inspection and enforcement priorities. These measurements would be a way to build consensus around feedlot issues and help move away from the divisive, complaint-driven system that exists today. In some cases, the measurements would calm the fears of citizens who believe they are more threatened by feedlots than they really are; and in some cases they would help convince farmers that the environmental threat posed by their feedlots is greater than they think. It would give people on both sides of the issues greater confidence that government is really responding to environmental problems, rather than to political considerations. Finally, the data could demonstrate that progress is being made and problems are being solved.

The state should also collect and make widely available data regarding the environmental impacts of various animal agricultural methods and technologies. The GEIS could accomplish this goal. While this information is already provided by the state to some extent, we heard complaints at the round table meetings, particularly from citizens opposed to feedlots, that they still had to do their own research about environmental impacts and mitigation methods. With new technologies and methodologies being researched around the world to address this industry's environmental impact, there should be a central clearinghouse that farmers, the public, and government officials can consult to keep up with the relevant developments and the evolution of best practices.

Create an Emerging Issues Research Agenda

It is important for government to anticipate emerging issues related to animal feeding operations and be able to respond to concerns of both citizens and producers. The state may still be suffering from the consequences of its failure to identify the rapid changes in animal feeding operations, particularly swine operations, in the early 1990s and to anticipate some of the odor and air quality issues. This inability to quickly respond led to a great deal of controversy, diminished confidence in government and made it difficult for government, the public and producers to deal with each other.

FMMAC was created in the 1994 legislative session to assist the Department of Agriculture and MPCA deal with, among other things, the need to establish research needs related to animal agriculture.⁸⁵ Although FMMAC has proven valuable in several areas, it does not have a current research agenda, in part because of the heavy focus on the MPCA feedlot rules over the last two years, and in part because it has been waiting for the GEIS to be completed.

There are several issues that might benefit from research including antibiotic use, use of hormones, methane's contribution to climate change, or other issues identified in the GEIS. In some cases, formal scientific research should be conducted, in other cases it may be sufficient to simply gather information on research being done by others and present it in a format useful to government agencies, producers, and the public. The state, either through FMMAC or an advisory group associated with the GEIS, should establish an emerging issues research agenda for animal feeding operations that would

allow state and local agencies to better anticipate and more quickly respond to issues. This approach should build public confidence and allow agencies to tailor their responses more closely to the nature of the actual impacts of the issue. The emerging issues research could be accomplished through updates of the GEIS.

Strengthen the Information Management System for Feedlots

Our research demonstrated that data both on agency and county activities related to feedlot management (EAWs completed, county inventories, cost-share projects, complaints, permits, inspections and enforcement actions) and on environmental conditions related to feedlots are hard to find and scattered among counties, MPCA regional offices, and various state agencies. This situation has to make internal management decisions related to allocating resources and assessing environmental progress very difficult. It also makes it virtually impossible for the public, the legislature, or others to understand what progress is being made in improving environmental conditions or to evaluate the performance of the counties or the state agencies.

The new registration system established in the MPCA rules⁸⁶ provides an excellent starting point for building a data system that identifies all of the feedlots in the state. Ideally, this data system should track educational and technical assistance contacts with each facility, cost-share agreements and payments, complaints, state and local permits, environmental review activity, inspections and any enforcement activity using a single site identifier. The system should also be capable of tracking ambient environmental data and data on sensitive soil or geologic types as that data becomes available so that priority areas can be identified and progress in correcting problems can be tracked.⁸⁷ MPCA, delegated counties and other state agencies involved in the feedlot management process should participate in the system to ensure complete data sets. Work now underway between U.S. EPA and the Environmental Council of the States on a "National Environmental Information Exchange Network" might be helpful in designing a data system that can meet these needs.⁸⁸ In line with the rapidly expanding trend among states and at U.S. EPA, data on feedlot management and environmental conditions related to feedlots should be easily accessible to the public through the internet.⁸⁹

CONCLUSION

The large number of animal feeding operations, the range of environmental issues associated with these facilities, and the high level of controversy related these operations requires a much more systematic, problem-solving approach by government to effectively resolve environmental concerns and build public confidence. This approach should start by identifying a few high priority problems and deploying an integrated compliance management system to solve the problems. To accomplish this goal, government agencies must better coordinate their activities and find better ways to involve the public and producers in the problem-solving process.

Chapter 5

ENVIRONMENTAL REVIEW OF FEEDLOTS

Introduction

This chapter examines the environmental review program and its impact on feedlots. Nine recent Environmental Assessment Worksheet (EAW) cases are examined to evaluate the efficacy of environmental review programs with respect to feedlots. MPCA staff and county regulatory staff were interviewed for each project, environmental and permitting rules were reviewed, court decisions and recent legislation were examined. The relationship of feedlot environmental review to state, federal and local permitting and review processes is discussed and issues and concerns are identified.

Purpose of the Environmental Review Process

The environmental review procedures were designed to provide information regarding the potential environmental impacts of a proposed project to government decision-makers, project proposers and the public. The state program has been in place for over 30 years.

As stated in the environmental review rules, a “first step in achieving a more harmonious relationship between human activity and the environment is understanding the impact which a proposed project will have on the environment. The purpose of [the environmental review program rules] is to aid in providing that understanding through the preparation and public review of environmental documents.” (Minn.R. 4410.0300, Subp. 3)

In addition to this stated purpose, the environmental review procedures are also designed to:

- Provide project information early in project development.

The rules state, “Environmental documents shall contain information that addresses the significant environmental issues of a proposed action. This information shall be available to governmental units and citizens early in the decision making process.” (Id.)

By generating information early in the project’s development, changes that can mitigate the environmental impacts of the project can be identified and implemented while the project is still in the planning stages. While a project is in its planning, and more malleable, stage changes can be made with less potential for cost and schedule disruption. Early and accurate information provided by environmental review also helps stop rumors about controversial projects.

The review process also requires that comments be received within a certain time limit so that project proposers know early on what concerns government agencies and the public may have regarding the project. This provides some predictability to project proposers by restricting the time for comments and changes to the project.

- Allow for public involvement

The rules specify that the process is designed to, “provide the public with systematic access to decisions makers, which will help to maintain public awareness of environmental concerns and encourage accountability in public and private decision making.” (Id. Subp. 4)

Environmental review provides a forum for discussion of issues and disagreements. Accurate information regarding the project and its possible environmental impacts must be publicly disclosed. Comments and decisions regarding the need for further study must be made within a designated time frame. These requirements for disclosure and time limits on discussion help focus discussion of issues and often promote consensus on what measures should be taken regarding the project.

- Improve permitting decisions

The rules further note that, “Environmental documents shall be used as guides in issuing, amending, and denying permits and carrying out other responsibilities of governmental units to avoid or minimize adverse environmental effects and to restore and enhance environmental quality.” (Id.)

Information gathered in the environmental review process can be used in the permitting process as appropriate. Because environmental review is suppose to provide information to assist government agencies in making permit decisions, state law requires that permits cannot be issued before the environmental review is completed.

Minn. Stat. Chapter 116D, which established the environmental review procedures, directed all departments and agencies of the state to “utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making which may have an impact on the environment.” In addition to providing permit information, comments from the public and other agencies provides decision-makers with a broader view of the whole project and facilitates the interdisciplinary approach mandated in the law.

Minnesota Environmental Review Procedures

Minnesota environmental review procedures provide for the preparation of Environmental Assessment Worksheets (EAW) and Environmental Impact Statements (EIS). EAWs are prepared using a standardized checklist-style form and are designed to provide a fairly brief description of the proposed project and the anticipated environmental impacts. Although EAWs were designed to be brief, in practice the documents are sometimes quite lengthy. EAWs are also used as a decision making tool

to determine the need for a more detailed environmental study, the Environmental Impact Statement (EIS). The rules list mandatory categories for EAWs and EISs for a wide variety of projects. Projects falling within these mandatory categories must prepare the required documents. The government entity that is likely to have the most regulatory authority over a project is assigned to be the Responsible Governmental Unit (RGU) and is responsible for the preparation and distribution of the EAW or EIS.

Feedlot Environmental Review

What Triggers Environmental Review for Feedlots

An EAW is required for the construction of an animal feedlot facility with the capacity of 1000 animal units or more or the expansion of an existing facility by 1000 animal units or more. If the facility is located in certain sensitive areas, then the construction or expansion of a feedlot facility of more than 500 animal units requires preparation of an EAW. Certain small expansions or construction of new feedlots with limited numbers of animal units are exempt from environmental review.

An EAW may also be prepared for a small, non-exempt project if the governmental unit responsible for permitting the facility decides that the project, because of its nature or location, may have the potential for significant environmental effects. The responsible governmental unit, which may be either Minnesota Pollution Control Agency (MPCA) or a county, may make this decision based on its own knowledge or upon evidence presented to it in a petition signed by at least 25 citizens. The Environmental Quality Board (EQB) may also require preparation of an EAW or the project proposer may elect to prepare one voluntarily.

One of the purposes of an EAW is to determine the need for preparation of an EIS. The environmental review program rules establish thresholds for mandatory preparation of EISs for certain types of projects, but there are no mandatory thresholds for feedlot projects.

According to EQB rules, an EIS must be ordered if a project has the “potential for significant environmental effects.” In making this decision, the RGU must consider four factors: 1) the type, extent, and reversibility of environmental effects; 2) the cumulative potential effects of related or anticipated future projects; 3) the extent to which the environmental effects are subject to mitigation by an ongoing public regulatory authority; and 4) the extent to which the environmental effects can be anticipated and controlled as a result of other environmental studies or a previous similar EIS.

Frequency of Environmental Review

Very few feedlots undergo EAW review and no feedlot in Minnesota has ever had an EIS prepared. According to the 1997 US Census of Agriculture special tabulation, there were 38,468 farm operations with livestock in the state in 1997. Of these, an estimated 18,000 to 20,000 have received MPCA permits.

According to MPCA data for feedlot permits issued between 1990 and 2000, the largest number of permits were issued in 1996 (841) and 1995 (828). The number of permits has declined steadily since then. Only 412 permits were issued in 2000.

During the five years from 1993 to 1997, which includes the peak feedlot permitting years, MPCA issued 3767 permits but prepared only 47 EAWs for feedlot operations. During those years, 1.2% of the feedlots receiving permits underwent EAW review.

In October 1999 new rules for EAWs became effective. One of the changes involved the mandatory category for EAW preparation for feedlots. The mandatory category was changed from 2000 AU to 1000 AU for new or expanding feedlots. MPCA reports that 16 feedlots of 2000 AU or greater received permits in 2000 and 35 feedlots of 1000-1999 AU received permits. However, only 5 EAWs were completed during that year.

The types of feedlots receiving permits can explain some of this discrepancy. In addition to new or expanding feedlots, which would be subject to environmental review rules, MPCA also issues permits for existing feedlots, which would not be subject to the environmental rules. Unpermitted feedlots may come to the attention of the MPCA due to pollution problems or complaints. It is not known how many of the permits are issued to already existing feedlots. Due to the lack of detailed aggregate records regarding permits, it is not feasible to determine whether all projects that should be undergoing EAW review are in fact being reviewed.

MPCA Record-keeping

During this study, we found two significant bits of information that were unavailable from MPCA. As discussed above, the Agency does not maintain adequate records regarding permits issued for feedlots. Without going through all the individual files for permits, it is not possible to determine whether all projects that should be reviewed by EAWs are in fact undergoing environmental review.

Secondly, MPCA does not maintain comprehensive records of the EAWs that are prepared by the Agency. Without going through individual files, it is impossible to determine the type and size of projects that have undergone EAW review. MPCA staff has recently begun keeping aggregated numbers on the disposition of citizen petitions for EAWs and the number of EAWs completed, withdrawn and ongoing since July 1998. But no detailed information is available.

Since so few EAWs are done for feedlots, this type of record keeping should not be difficult for MPCA. Accurate, up to date records regarding feedlot EAWs could be useful for policymakers. Since there has been some concern regarding the perceived burden that environmental review may pose for feedlot development, accurate information reflecting the actual number and size of feedlots that are affected by environmental review could be useful.

EAW Procedure

From the preparation of an EAW through to the decision for the need for an EIS, the EAW procedure for feedlots is an interactive process. Questions and information regarding the project flow back and forth between the project proposer, the MPCA, other agencies, local government and the public.

As part of the EAW process, project proposers (or their consultants) generally prepare a rough draft of the EAW for MPCA staff to review. The MPCA staff reviews the draft in house and makes comments to the proposer regarding additional information that may be needed, clarifications, and editing changes. Many of the comments are aimed at making the EAW as understandable as possible, to facilitate public review. For example, MPCA staff will often request that charts or tables be made more complete and easier to understand and maps be easily readable. The EAW may undergo several drafts until the information is acceptable to the MPCA.

Once the EAW is considered acceptable, it is signed by MPCA and circulated for public comment. One staff member observed that the comment period not only is useful for soliciting comments but also serves to provide accurate information about a project and reduce rumors that may be circulating. This is particularly significant for controversial projects.

The comment period lasts for 30 days and extensions can be granted. Feedlot EAWs typically receive some comments (and sometimes receive numerous comments). The MPCA staff reviews the comments and prepares a response to the comments. Often comments raise issues that will suggest the need for mitigation measures. These will be discussed with the project proposer and agreements concerning permit conditions or other mitigation measures may be reached before the EAW process is completed.

The MPCA staff prepares an Issue Statement and Findings of Fact for the MPCA Board. These reports include a summary of the EAW, any mitigative measures that are planned, a summary of the comments received and staff response to those comments, and a recommendation regarding the need for an EIS. The Board then reviews the project and determines whether to accept the staff recommendation.

Use of EAW Information

The main use of information generated in the EAW process is for permit conditions. In the projects reviewed below, each project was examined to see if mitigation measures discussed in the EAW were put into permit conditions. We found that these mitigation measures are almost always pursued if the project continues to completion.

MPCA involves its permit staff in the review of the EAW throughout the EAW process. The permit staff persons and the environmental review staff persons universally reported that they work closely together in the development and review of each EAW. Even with staff turnover and staff reorganization, we found only one example of a mitigation measure being dropped or forgotten. MPCA staff reports that the reorganization of staff into districts may have even improved this coordination.

Information in the EAW is not only used for permits issued by the MPCA. In two of the reviewed projects, the counties included numerous conditions in their Conditional Use Permits. In both cases, most of the conditions came from recommendations included in the EAW.

One county staff person commented that it was helpful to have the information generated in the EAW because it gave the planning commission confidence that someone other than themselves had reviewed the project. Conversely, some counties have found it difficult to deny a permit or impose strict conditions if the project has received a negative declaration from the MPCA. Some felt that the negative declaration implied that everything is all right with the project.

None of the projects reviewed required any permits issued by federal agencies.

County Involvement

Recent EQB rule changes allow counties to be RGUs for the preparation of EAWs if the county will be issuing the feedlot permit. At this point, no EAWs with a county RGU have completed the environmental review procedures. However, some of the county staff persons contacted for this study indicated that they were or anticipated that they would soon be preparing an EAW.

A few county staffers expressed concern that preparing an EAW might be too great a burden for them. There is concern that the county may bear the cost of EAW preparation or that the county does not have the expertise to prepare these documents.

Citizen Involvement

Citizens become involved in the EAW process through a number of avenues. Any person may request the preparation of an EAW on a project by filing a petition that contains the signatures and mailing addresses of at least 25 people. The RGU may then decide whether or not to prepare an EAW on the project. Three of the projects reviewed for this study had petitions requesting EAW preparation.

EAWs are distributed to a wide audience and are subject to comment during a 30-day period. Comments from neighbors and other interested citizens are common for feedlot EAWs.

Auditor's Study

In January 1999 the Office of the Legislative Auditor issued a Program Evaluation Report on Animal Feedlot Regulation. As part of this study, the auditor examined environmental review procedures as they pertain to feedlots.

The Auditor found that "the main value of the environmental review process is its effect on permitting conditions for projects undergoing environmental review and on MPCA policies affecting future feedlot projects." The study noted that the environmental review process enables MPCA to devote significantly more attention to environmental issues and

to receive more citizen input than is typically the case with permit applications not subject to environmental review. As a result, environmental review has caused MPCA to impose new conditions on projects when citizen input or other information has shown that environmental problems may result from the project.

The study's second finding was that "MPCA has improved its environmental review of feedlot projects." The Auditor noted that in the past, MPCA had not been as sensitive to concerns about air quality as it had been to water quality issues. This had improved with the use of a model during the EAW process to estimate hydrogen sulfide and ammonia air emissions.

This study for the GEIS also supports those two conclusions. As demonstrated in the case studies discussed below, permit conditions often evolve out of information developed in the EAW process. Also, the MPCA is continuing to improve its environmental review process through improvements with internal review, refinement of analytic tools, and coordination with field staff.

One concern the Auditor raised has not materialized and may have been based on inaccurate numbers. The auditor's study discussed the workload created by environmental review and expressed concern for what they termed a "dramatic increase" in environmental review workload. They stated that the number of EAWs assigned to MPCA in 1998 "will be more than double the average for the last three years" and reported that by October 1998 22 EAWs had been assigned to the MPCA versus an annual average of about 10 for the previous three years.

EQB records do not report any increase in feedlot EAWs for 1998. This may have been due to the downturn in the hog market. Nine EAWs were completed by MPCA in 1998, which is the same number that was completed in 1997. These two years had modest increases over the eight EAWs completed in 1996 and six in 1995. In 1999, the number of EAWs completed fell to four.

Faced with what they perceived was a large increase in the workload for MPCA's EAW preparation, the auditor expressed concern about the time environmental review was taking and the impact the EQB rule changes might have on the volume of environmental review. Since the rules became effective in October 1999, this concern has not materialized. MPCA staff has stated that they have not noticed any impact on the volume of EAWs since the rule changes became effective.

Recent Changes to Feedlot Environmental Review

In the last two to three years, there have been numerous changes made to the feedlot program that affect environmental review. Chapter 7 of the Role of Government Technical Work Paper describes the changes that have taken place during this time. This section discusses some of these changes and the potential impacts these may have on environmental review.

1998 Legislation

In 1998 the Minnesota Legislature passed a provision requiring the MPCA to the extent practicable to include a public notice and comment period for individual NPDES permits at the same time that an EAW is made available for public review. This apparently was done to reduce the time needed for overall project review.

Under current environmental review rules, if an EAW or EIS is required or if a petition for an EAW is filed, a project may not be started and a final governmental decision may not be made to grant a permit or approve a project until the petition is dismissed, a negative declaration is issued, or an EIS is determined adequate (Mn Rules 4410.3100).

Since one of the purposes of environmental review is that the environmental documents should be used as guides in issuing, amending, and denying permits (Mn Rules 4410.0300), it is logical that permit decisions should be made when the information needed to assist that permit decision is available. When a permit is officially noticed, it has been essentially completed and the conditions of the permit are included. The permit may need to be renoticed if major changes are made to the permit, if the permittee disagrees with the permit conditions, or if permit conditions have been relaxed.

So far, MPCA staff reports that this provision has not created any problems for projects undergoing environmental review. However, the potential exists for problems to arise. If a project is complex and numerous environmental issues are identified in the environmental review, the permit may need to be amended and renoticed (thereby not saving any time for the permit applicant). Additionally, due to the difficulty in rewriting and renoticing a permit, there may be greater reluctance to add permit conditions to address environmental issues that have been identified.

2000 Legislation

In 2000 the Minnesota Legislature made a number of changes to feedlot permitting and government controls over feedlots. Three provisions of these changes have a potential impact on environmental review of feedlots.

One, the numbers for calculating animal units (AU) was changed by the Legislature. The changes increased the number of animals that would be required for the AU calculation. Since EAW mandatory categories are based on AU numbers, this means that facilities that might have come under the mandatory category for EAW review may avoid that review.

Two, the Legislature also stated that in its rules, the MPCA shall not require information on the permit application that is not specifically required in the rules, unless the feedlot operator will be using new technology.

This has not been reported as a problem so far for projects undergoing environmental review. However, this does restrict the flexibility of the MPCA to respond to potential environmental impacts that may be identified in the environmental review process and to

require mitigative measures. This also may serve to discourage project proposers from utilizing new feedlot technologies to respond to environmental concerns.

Three, the MPCA may no longer require air emission modeling for the type of livestock systems that have not had a hydrogen sulfide emission violation. As discussed below in the EAW case studies, air emission modeling is relatively new and has been evolving over the last few years. Under this new provision, MPCA is requiring modeling on only two types of hog facilities—earthen storage basins and concrete pit with natural ventilation. Neither technology has been used recently for new facilities in Minnesota.

Without modeling to indicate possible problems with air quality, it is more difficult to require emission monitoring for a project. If modeling and monitoring are restricted, projects that could be causing air quality problems are unlikely to be identified. By restricting diagnostic tools available to assess potential impacts, confidence in the quality of environmental review will be undermined.

EQB Rule Changes

Since 1988 the environmental review program rules have directed that any two or more proposals that are “connected actions” must be treated as one proposal when determining if an EAW must be prepared. Connected actions are two or more actions that are related if (1) one project would directly induce the other, (2) one project is a prerequisite for the other, or (3) neither project is justified by itself.

Formerly, a typical feedlot project was a farrow to finish operation, all on one farm. However, in the 1990s the feedlot landscape changed dramatically and it became increasingly common to see the individual farrow to finish components divided up and sited remote from one another. In order to address this change in the industry, MPCA began looking at feedlot proposals as connected actions when applicable.

Until the mid-1990’s, the connected actions rule had been little used and had generated no controversy. However, when multi-site feedlots, particularly hog feedlots, came under EAW review due to the connected actions provisions, controversy arose. In 1998 the Minnesota Legislature directed the EQB to revise and clarify its rules for animal feedlots, particularly in regard to how the existing rules on connected actions were applied to animal feedlots.

The EQB published a request for comments but did not receive a clear directive from the comments. It then formed an ad hoc group with representatives from regulators, livestock industry, and environmental groups. The group was unable to reach consensus on a specific proposal but indicated need for some sort of trade off involving elimination of connected actions in exchange for lowered thresholds for EAWs. These general recommendations led to proposed rule changes.

In October 1999 new rules became effective for the environmental review program. The rule amendments provide the following:

- Elimination of the connected actions provision for animal feedlots

- Reduction of the mandatory level for preparation of an EAW from 2000 animal units to 1000 animal units
- Increase of the exemption level from 100 animal units to 300 animal units
- Identification of sensitive areas where environmental review of small animal feedlots is required
- Add that if a county will issue the feedlot permit, the county is the responsible governmental unit (RGU) and responsible for preparation of an EAW (in most cases, however, the MPCA remains the RGU).
- Modification without expansion of an existing feedlot of no more than 300 animal units is exempt from review if the modification is necessary to obtain a Minnesota feedlot permit.
- If the proposers of a multi-site feedlot operation agree, one EAW can be done on all the proposed sites.

These rule changes apply only to feedlot operations. The connected action rule remains in effect for all other types of development proposals. The rules requiring environmental review for phased actions remains in effect for feedlots (phased actions are two or more projects undertaken by the same proposer that will have environmental effects on the same geographic area and are substantially certain to be undertaken sequentially over a limited period of time).

New EAW Form

As part of a veto of Chapter 204, House File 1235 relating to regulatory requirements for feedlots, Governor Jesse Ventura asked the EQB, MPCA and Department of Health to develop an alternative EAW form to be used for feedlot projects. The new form was to be designed to expedite the preparation time and minimize the costs associated with preparing an EAW. The new form was not to reduce the amount and quality of information necessary to accurately determine if the project has the potential for significant environmental effects.

The new form has been developed and has been used for at least two projects (Alliance Dairy was the first to use it). The new form covers the same subject areas as the general EAW form but, since it is geared to only one type of project, the questions are more project specific. For example, the general form asks for information regarding solid wastes, hazardous wastes and tanks. The new form addresses this issue with questions regarding the manure management system to be used, manure collection, handling and storage, manure utilization, manure application and dead animal disposal

Although the new form asks more direct questions regarding feedlots, it may not be feasible for a project proposer to fill it out without technical assistance. For someone unfamiliar with EAWs, the specific questions in the new form should be easier to understand and the information needs should be clearer. However, comments from county and state staff persons indicate that most project proposers would probably need the assistance of a consultant to fill out the form.

Case Studies

Based on discussions with EQB and MPCA environmental review staff, the following nine cases were examined. Projects were selected to represent a variety of geographic locations and different animal species. We included some very controversial projects and some that were more routine.

It is difficult, if not impossible, to identify a “typical” EAW for a feedlot. The projects and circumstances of each project vary greatly. This study examines a range of projects that have undergone EAW review but cannot conclude that what we found is necessarily typical for all feedlot EAWs.

ValAdCo

Project Description

This 1993 project was selected for study to help evaluate how EAW review of feedlots has changed. This EAW identified the need for additional information to adequately review feedlot projects.

ValAdCo proposed to construct and operate a total confinement hog breeding and finishing facility on two sites in Renville County near Morton. The breeding unit was to accommodate 1330 AU and the finishing site was to accommodate 3456 AU, for a total of 4786 AU.

The project proposed to store manure in two earthen basins, 10 and 7.5 acres in size. This was considerably larger than the typical basins used at that time which tended to be less than an acre in size.

Project History

The project proposer submitted a permit application in May 1993. In July 1993 a petition requesting an EAW on the project was filed with the EQB. Since the project was a total confinement facility exceeding 2000 AU, preparation of an EAW was mandatory.

The MPCA received numerous comment letters on the EAW. Comment letters identified ground and surface water impacts and odors as major issues.

This proposal was part of a trend toward very large feedlot operations incorporating earthen basins for manure storage and annual land application of manure and wastewater. The MPCA staff was concerned at the time because the Agency’s existing storage basin containment specifications were intended to be used by relatively small facilities. The guidelines, which were originally developed for municipal lagoons and recommended a leakage rate of 500 gallons per acre per day or less, were not appropriate for much larger lagoons with animal wastewater which is more concentrated than municipal sewage.

The MPCA issued a negative declaration for the project in October 1993. Interim permits were issued in November 1993. The interim permits required the gathering of certain types of data before the final permits were issued.

The same day that MPCA issued its negative declaration for the project (October 1993), the MPCA was sued in District Court. In August 1994 the court denied the plaintiffs motions to appeal the MPCA's decision.

EAW Significance

As part of the findings of fact for this project, the MPCA staff developed a list of suggested information requirements that could be submitted with a permit application for large feedlot facilities and some possible mitigation measures that could be required if the submitted information indicates a need. The suggested information and mitigations applied to groundwater impacts and odor.

Since the proposer had already submitted permit applications for the two sites and adding the new information would negate the company's plans to begin construction that year, the staff recommended that the company be issued an interim permit. The additional information was to be added later and the final permit would be conditional based on the results of the additional information.

The interim permits required the establishment of baseline waste quality conditions, water quality monitoring, plans for management of odors, collection of data and information relating to environmental receptors and resources in the vicinity, and contingency plans for response to water contamination and odor events.

Hancock Pro-Pork

Project Description

In 1997 an EAW was prepared for the Hancock Pro-Pork facility. Hancock proposed to build and operate a 984 AU total confinement hog farrowing facility and a 400 AU total confinement hog nursery facility on the same site in Stevens County. This complex, to be owned and operated by Hancock Pro-Pork, would supply feeder hogs to shareholders. Fourteen finishing sites were proposed. On some of the sites, new barns were proposed to house the feeders, some sites would use existing facilities. One shareholder planned to sell the hogs and not engage in a feeding operation. The finishing sites were located in Stevens and Pope counties.

Project History

Following preparation and distribution of the EAW, in October 1997 the PCA staff recommended that the project did not have the potential for significant environmental effects and no EIS was needed. The staff noted that the proposers would be required to do air emission modeling to predict the dispersion of emissions from the farrowing/nursery site, and air monitoring to determine the actual concentrations of hydrogen sulfide emissions from the facilities. A manure management plan would be prepared. The MPCA issued a negative declaration for the project.

This project was the first to be reviewed as a connected action for a feedlot operation. Three certificates of compliance and one interim permit were issued for the project's

finishing sites before the negative declaration was made. This project was also one of the first feedlots to have air quality modeling required as a result of the environmental review.

The MPCA was sued in Eighth District Court regarding the negative declaration. The judge found that the MPCA's decision to issue a negative declaration was arbitrary and capricious because: 1) permits and certificates of compliance were illegally issued before environmental review was completed, 2) the negative declaration relied upon pollution prevention measures that were not applicable to each finishing site and, 3) MPCA's conclusion that hydrogen sulfide did not present a potential for significant environmental effect was not supported by the evidence. The judge remanded the matter to the MPCA for the preparation of an Environmental Impact Statement.

Following the MPCA's negative declaration decision, Hancock built on all but one of the project sites. In compliance with the Court's decision, MPCA is pursuing preparation of an EIS on the project, even though most of the project has been built and is operating. Since environmental review is designed to take place early in project development and before permits are issued, preparing an EIS after the project is constructed is unusual and potentially difficult. Consultants have been selected to prepare the EIS but the MPCA has not been able to reach an agreement with Hancock regarding payment of the cost of the EIS. Until a payment agreement is worked out, no work is being done on the EIS.

EAW Significance

Since several sites of this project received approval before the EAW process was completed, obviously the information contained in the EAW was of little use for those decisions. Also, since most of the project has been constructed before an EIS has been done, its questionable how much effect the findings of the EIS (if and when it is completed) will have on the project.

This project, however, is significant because it was the first feedlot that was reviewed as a connected action. The MPCA, in reviewing the Hancock proposal, determined that the operation involving farrowing and nursery plus numerous finishing sites fit the EQB rule definition of a connected action.

This particular review was flawed since a permit and certificates of compliance were issued to four of the facilities before the EAW was completed. In the court decision, it is noted that MPCA issued those approvals by mistake, not knowing that the projects were undergoing environmental review. Despite the flaws of this particular project review though, it represents a step by the Agency to get a handle on the large, multi-site operations that it is responsible for reviewing.

This project was also one of the first feedlots to have air modeling and monitoring required as a result of the EAW process. As noted in the court decision, there was concern for hydrogen sulfide emissions from the farrowing/nursery site. As a condition of the negative declaration, the MPCA staff recommended air emission modeling for selected feedlot gases and monitoring for hydrogen sulfide for the farrowing/nursery site.

A model for predicting the emissions from feedlots had recently been developed and was to be used for this site. This model has since been used for a number of sites and continues to be refined.

Northern Plains Dairy

Project Description

Two EAWs were prepared for this project for two different locations. The project proposal remained essentially the same for both EAWs but the second location was about one mile north of the first location.

The project proposed to construct and operate a new freestall dairy barn and milking center on 130 acres in Nicollet County. The facility would house 2,000 milking Jersey cows, 395 dry Jersey cows, and 105 fresh Jersey cows for a total of 3,500 AU. A clay lined earthen storage basin was proposed to store manure. Manure would be spread on nearby land as fertilizer once a year.

Project History

The project, as originally proposed, was located near a steep and narrow intermittent stream. The stream flows into Seven Mile Creek about 1.25 miles downstream from the proposed site. Seven Mile Creek is a DNR designated trout stream.

In its review of the first EAW issued in 1997, the DNR expressed concern about the project's location in relation to Seven Mile Creek and the possibility of a catastrophic release of manure and wastewater from the site traveling to Seven Mile Creek and eventually into the Minnesota River. The DNR was also concerned about the proposed land application of manure near Oakleaf Lake. The DNR owns a state-wildlife management area on the north and west shore of this lake. The DNR requested that an EIS be prepared on the project.

The concern regarding a release from the earthen basin was passed on to the project proposer. The proposer submitted an altered design for the storage basin to reduce the volume of basin contents stored above normal grade level. Both the MPCA and DNR staffs concluded that this change would not be enough to address the concern.

During review of the first EAW, the MPCA became aware that construction activities had begun on the site, prior to completion of the environmental review process and receipt of a permit. The EAW was temporarily suspended and enforcement action was taken against the proposer.

The MPCA staff recommended that an EIS be prepared on the project. The staff's findings of fact noted that there were other sites available in the area, including land owned by the proposer, that could be used for the project and that might avoid some of the problems identified for this particular site. The MPCA board did not take action on the staff's recommendation for an EIS. The project proposer dropped the plans for the first site and changed his proposal to a second site about one mile north of the first site.

A second EAW was prepared for the project to discuss the new site proposal. The first EAW had not included any air modeling because there were no available tools to model air emissions for dairy basins. By the time the second EAW was prepared, air emission modeling for dairies was available and was performed for the project. The modeling found slight exceedance for acute ammonia Health Risk Value and the potential for odor at the nearest neighbor. The MPCA indicated in the EAW that they would look into the need for mitigation and place any conditions necessary to assure such mitigation in the permit for the project.

The second EAW also identified that two of the proposed manure spreading fields for the project were to be located in the Wellhead Protection Area for the city of St. Peter. Due to this, the project proposal was changed to exclude these fields from the project.

The MPCA staff recommended, and the board issued, a negative declaration for the project at the second site. Gustavus Adolphus College then challenged the decision of the MPCA in court in 1999. The court found in favor of the MPCA.

EAW Significance

The EAW in this case had a considerable impact on the project location. Although alternatives are not generally addressed in an EAW, the environmental review caused this project proposer to select alternative sites for the project. By identifying the proximity of the first site to a sensitive area, the project site was changed. Information in the EAW on the second site resulted in identifying a potential problem with spreading manure on fields in a wellhead protection area and removing those fields from the proposal.

Although the court upheld the MPCA's negative declaration, the project has not gone forward on this site. MPCA staff believe that the proposer is selecting a third site and will file a third EAW sometime in the future.

Woodview Pork

Project Description

Woodview Pork Inc proposed to build and operate a 1,290 AU hog sow facility in Yellow Medicine County. The sow facility would supply nursery pigs to five nursery sites to be operated by Woodview members. These nursery sites would supply feeder pigs to other Woodview members who would in turn finish the feeders for slaughter market at their individual farms. The EAW covered the one sow facility; seven nursery sites in Lyon, Redwood, Mower, and Yellow Medicine counties; and eleven finishing sites in the same counties. New construction for the project would account for 3,360 AU and together all the facilities would house a total of 8,863 AU.

Project History

The EAW was completed and distributed in May 1998. The EAW noted that the Colin King nursery site was located within one mile of the Upper Sioux Agency State Park and

that there were four occurrences of rare species or natural communities within a one mile radius of the site.

Modeling for air quality impacts at two of the sites (the sow site and the Matt Schmidt finishing site) was also included as part of the EAW. The modeling showed that the Health Risk Values (HRV) for ammonia for short-term exposure at the sow sites would probably not be met. The modeling was done to give an indication of any problems that might be encountered, thus allowing the applicant and the MPCA to work out whether mitigation is needed. The MPCA also required monitoring at the two sites to determine whether the air emission impacts actually were within acceptable levels under operating conditions and provide an additional opportunity for mitigation if necessary.

The MPCA received comment letters from three state agencies, local governments and organizations and 64 concerned citizens. The MPCA issued a negative declaration for the project in August 1998.

In February 1999 the Yellow Medicine County Planning Commission voted to deny approval of the Woodview Pork farrowing facility, listing about 15 reasons why the project was denied.

EAW Significance

Before the EAW was presented to the MPCA board, the Colin King site was withdrawn from the project. Mr. King noted concern from the Upper Sioux Community and Upper Sioux State Park as his reason not to build on the proposed site. He intended to sell the pigs for this project on the open market.

This project used the connected actions provision of the EQB rules. The sow facility by itself was not large enough to trigger an EAW (the project proposed 1,290 AU and the EAW threshold was 2,000 AU). However with the entire proposed operation including the nursery and finishing facilities, the complete project was expected to house 7,670 AU in full production.

Yellow Medicine County, responding to considerable local opposition to the project, voted to deny approval and the project was not built on the proposed site. In detailing the reasons for the denial, the County Planning Commission referred repeatedly to information contained in the EAW but also cited information that they felt should have been covered in the EAW and was not.

As specified in the EAW, the permit for the Matt Schmidt finishing site required development of an air quality monitoring plan. However, at about the same time that permit was issued, the Woodview project was denied and the hog market declined, and the Schmidt project was not completed.

Golden Oval

Project Description

Golden Oval Eggs is an egg-laying facility located in the city of Renville, Renville County. The facility proposed to construct six new barns on a 30-acre parcel of land directly north of its existing facility. Each barn would have the capacity to house 127,200 chickens. The expansion would increase the total animal population at the facility from 2,000,000 birds (20,000 AU) to 2,763,000 birds (27,630 AU). Manure from the hens would be collected in concrete pits below the layer houses and spread on agricultural fields as fertilizer. The project also involved an egg breaking operation where eggs would be broken and separated and shipped by bulk tanker trucks. The egg shells would be land applied as a soil amendment.

Project History

The EAW was distributed for public comment in May 1998. One hundred twenty five comment letters and two petitions were received during the 30-day comment period. Most comments focused on air pollution and odors, housefly nuisances, and the economic benefits of the current facility for the local community. Other issues included disease potential from flies, impacts to water quality from spreading manure, disposal of solid wastes, and cumulative impacts of this facility with others nearby.

The MPCA staff concluded that the EAW had not generated sufficient information to adequately address the issues raised by staff and the public concerning this project. They stated that there were a number of issues that required further study in order for the MPCA to make an informed decision as to whether to issue a permit for the project. Therefore, the staff recommended that an EIS be prepared.

The cumulative potential effects of related projects were an issue for this project. The Golden Oval facility is located in close proximity to three other facilities that emit hydrogen sulfide. Information supplied by Golden Oval indicated that the facility might have the potential to exceed the state hydrogen sulfide standard. Additionally, three nearby facilities (two ValAdCo hog operations and the Southern Minnesota Beet Sugar Cooperative) also emit hydrogen sulfide. The proximity of the ValAdCo facilities was also a concern for ammonia emissions. Modeled ammonia emissions from the Golden Oval facility alone were just above the proposed acute HRV and the modeling did not take the cumulative impacts from other facilities in the area into account.

In September 1998 the MPCA Board was scheduled to vote on the need for an EIS on this project. At the Board meeting the company withdrew its project as designed, stating that it would resubmit the project with further mitigations to address the issues that the staff had identified as needing further study in the EIS. The project did not go forward and the company turned its attention to developing a facility in Iowa.

EAW Significance

In this case, the opposition to the project and the prospect of an EIS appeared to cause the project proposers to withdraw the project.

This project is also significant because the cumulative impact of hydrogen sulfide and ammonia emissions due to the project and other large projects in the area were considered in the need for an EIS. The staff proposed that these cumulative impacts be studied in an EIS.

Farmers Isowean

Project Description

Farmers Isowean proposed to construct and operate a total confinement hog farrowing facility in Watonwan County. The farrowing facility would house 1,168 AU and would supply its members with feeder hogs for finishing to market weight. It was a multi-site project that incorporated a group-owned and -operated farrowing facility that would supply piglets and feeder hogs to nurseries and finishing barns owned and operated individually by the group members. Some of the finishing and nursery facilities were existing and permitted and planned no new construction, some would be expansions of existing facilities; and some would be built on new sites. The complete project would provide a net new capacity of 2,814.7 AU.

Manure generated at all sites would be stored in underbarn concrete pits until removed for application to cropland as fertilizer.

Project History

The project came under EAW review because the total animal units from the multi-site project exceeded the mandatory category. It was considered a connected action.

An EAW was prepared in 1998 and circulated for public comment. The MPCA issued a negative declaration for the project in September 1998.

Air emission modeling was performed for the farrowing facility. The modeling predicted exceedance of the state's ambient air quality standard during agitation and removal. The applicant agreed to install a biofilter at the farrowing site to resolve the air quality concerns.

Several EAW commenters expressed concern about the presence of coarse soils and shallow ground water in some of the fields proposed to be used for manure disposal. In response, the operator proposed to eliminate most of the fields of concern from manure application.

The project was not built. This was due to economic problems regarding the project and developments in the general hog market at the time.

EAW Significance

Information generated by the EAW indicated need for measures to address air quality and water quality issues. The project proposer agreed to add a biofilter and to change the location of some of the manure spreading areas to address these concerns. The project

was not built, but this was due to market conditions and not any environmental issues or opposition.

Lake County Land Egg

Project Description

Lake Country Land Egg proposed to construct one high rise style total confinement poultry barn to be added to two existing total confinement barns at its site in Stearns County. The new poultry barn would house 963 animal units (96,360 hens). The two existing poultry barns housed a total of 192,720 hens (1,927 AU) and, with the new project, the total number of hens on site would be 289,080 (2,891 AU).

The barn would be a high rise style, 29 feet in height with the entire structure above ground. The chickens would be housed on the second floor of the building while the lower floor would be used for the storage area for dry poultry manure. The air in the poultry barns is pulled through the attic into the downstairs pit area via fans located four feet above grade. The manure is stored in the barns for six months at a time, then cleaned out and spread on area farm fields, once in the spring before planting and again in the fall after harvest.

Project History

The EAW for this project was distributed in September 1999. Comment letters from several government agencies and citizens were received.

Air modeling was performed for the EAW review. The results indicated that the estimated maximum property line ammonia concentrations were less than the MDH's proposed acute ammonia inhalation Health Risk Values. However, concern was expressed by some commenters regarding dust and odors from the existing barns and the potential for more from the third barn.

In response to these concerns, the Lake Country Land Egg proposed to control dust by: 1) Using south fans as much as possible which would direct emissions away from residents, 2) installing a weatherhood over the fans on the north to direct exhaust air directly to the ground, 3) cutting a ditch along the new barn that would be seeded with dense foliage, 4) planting a double row of conifer trees on the north side of the new barn to help contain dust, 5) extending the space between the barns all the way to the ground to hold and trap dust, 6) locating the manure clean out door for the new barn on the south side of the barn. The proposed mitigative measures were not required for the facility to meet standards for dust and ammonia emissions but were done to respond to concerns of nearby residents.

The MPCA issued a negative declaration on the project in January 2000.

EAW Significance

In October 2000 the project received its conditional use permit from Stearns County. The project was controversial and the county closely examined the project proposal. The project's first request for a variance was denied. Later, the county changed its setback

rules and the project setback was approved. The county issued a Conditional Use Permit (CUP). The CUP contained nine conditions for the project, including all six that the proposer had agreed to during the EAW review, plus provisions for a fly control program, a provision for the disposal of dead chickens, and a requirement for regular updates for the manure management plan.

A county staff person stated that the EAW helped the county's Planning Commission review the project and was instrumental in developing their final conditions for the project.

River Ridge Dairy LLP Dairy Facility Expansion

Project Description

River Ridge Dairy proposed to expand an existing 700-cow dairy operation to house a total of 1,600 cows in Kittson County. The project would add freestall barn and associated poured concrete manure collection pit. Manure would be stored in an existing earthen basin. Manure would be removed once per year and applied to nearby fields.

Project History

The EAW was prepared in response to a petition. The EAW was distributed for comment in April 1999. The MPCA issued a negative declaration for the project in June 1999.

The EAW noted that ground water monitoring was required for the project. Continuous air monitoring was also required for at least one year of operation following expansion. The provision for continuous air monitoring was not put into the permit and air monitoring at the site has been done only in response to a complaint.

Although the EAW was prepared in response to a petition, the only comment letters on the EAW received from residents in the area supported the proposed project.

Project Significance

This was the only project we reviewed where a main recommendation of the EAW was not included in the project permit. While the requirement for ground water monitoring was included in the permit, the continuous air monitoring provision was not. Air monitoring has not been done at the site except in response to complaints.

It is also interesting to note that the only citizen comments on the EAW were favorable to the project. It is possible that the lack of citizen involvement and concern about the project influenced the decision to not include the continuous air monitoring requirement.

Becker Farms

Project Description

Becker Farms proposed to construct a total confinement dairy facility in Meeker County, about ¾ mile west of the Eden Valley city limits. The facility would house 710 cows (994 AU). All collected manure would be pumped to an earthen manure storage basin.

Project History

The proposer volunteered to do an EAW for the project. Before the EAW was prepared a valid petition requesting an EAW was received. The petition raised a number of concerns about the proposed facility including concerns for surface water contamination, proximity to the floodplain, potential for ground and surface water contamination, air quality impacts, possible impacts to local water supplies and others.

An EAW was prepared and distributed in March 2000. In June 2000 the MPCA issued a negative declaration for the project. Meeker County issued a Conditional Use Permit for the project before the EAW process was completed, but made approval of the CUP conditional upon the facility receiving a negative declaration.

Project Significance

The Minnesota Department of Health examined the hydrogeological setting of the city wells and concluded that the proposed dairy would have no direct impact on nearby wells. As part of the EAW the Meeker County Zoning Administrator was contacted and asked to review the project. The County identified several areas of concern and as a result, two small tracts of land have been eliminated as possible manure spreading areas due to floodplains.

Two conditions were identified for the MPCA Interim Feedlot permit for the project. One condition, which is fairly standard for earthen basins, includes requirements for the construction, operation and maintenance of the liner system. A second condition, which was not as standard, responded to concerns about odors from the facility and added special conditions for odor mitigation.

Discussion

The EAWs reviewed for this study represent a variety of projects proposed over a seven-year period. Most of the projects reviewed were controversial, two underwent court challenges, none have had EISs prepared (although an EIS for Hancock is planned but currently pending), several projects were never built (due to controversy or due to change in market conditions), and most had some mitigation measures either planned or incorporated into the project.

Early Information to a Wide Audience

The EAW is designed to provide project information to a wide variety of interested parties early in the project design. As a project progresses in its planning and permitting and as more commitments are made, it becomes increasingly difficult to make changes to the project (particularly if the changes are major).

As noted in the case studies, most of the EAWs for these projects were developed early enough in the project that changes could be made. The Hancock facility is a noteworthy exception to this because the environmental review was done after several of the project's finishing sites received permits or certificates of compliance. The Eighth District Court in its review of this case criticized the MPCA for issuing the approvals before environmental review was complete. However, in the other case studies the information

was developed in the EAWs early enough so that mitigation measures could be negotiated with the project proposer or incorporated into MPCA permits and county CUPs.

One county staff person observed that an additional benefit of the EAWs is that they provide accurate information about the project to a wide audience. He noted that, for controversial projects, distribution of the EAW helped to stop rumors about the project, and could serve to calm some fears.

The EAW is the only method available for significant public involvement for feedlots. There are some public notice requirements for some feedlot permits but the notice is usually limited to immediate neighbors and is a significantly smaller audience than an EAW distribution. Local governmental units also may hold public meetings to discuss local approvals (particularly if a conditional use permit is needed) and neighbors can become involved then. However, notices and meetings regarding permits generally occur later in project development than EAW review. The EAW is the only mechanism available to provide pre-permit project information to a wide audience.

Unless a state agency has permit authority for a feedlot proposal, its only review of a project would come through an EAW. EAWs are distributed to all state agencies that are members of the Environmental Quality Board. Additionally, three federal agencies (Corps of Engineers, EPA, and Fish and Wildlife Service) and the State Historical Society receive copies.

Based on the case studies, it appears that most of these agencies do not comment on feedlot EAWs. The Department of Natural Resources is one notable exception since comments from the DNR were received on most of the projects. Most, but not all, of the projects also required DNR water appropriation permits. In the case of Northern Plains Dairy, a concern raised by the DNR resulted in the proposer selecting a new site for the proposed project. In this case, the DNR's concerns about the original site were not known until the EAW was distributed.

Role of the Public

Public involvement plays an important role in environmental review of feedlots. Citizen involvement is most significant in three areas: to ask for environmental review for a project, to raise issues and questions about the project and to encourage government entities to carefully consider the project impacts. Citizens may file a petition for an EAW and help identify projects that warrant review. In many of the projects reviewed for this study, new issues were raised during the review of the EAW (the evolution of the issues is reflected by contrasting the issues raised in the EAW with the issues discussed in the MPCA staff findings of fact). Members of the public often raise these new issues.

Public comment also gives weight to certain issues. As one county staffer observed, county boards were likely to look much harder and impose more conditions on a project that had considerable public opposition. Citizen opposition and comment is also

considered by state agencies as well and has often raised issues that might not have been considered or would not have been considered as carefully without citizen involvement.

Permitting Decisions

The case studies indicate that the information generated in the EAW is usually incorporated into MPCA permits and county deliberations. In the Lake County Land Egg project, Stearns County incorporated six provisions from the EAW into its Conditional Use Permit. For the Woodview Pork project Yellow Medicine County referred repeatedly to the EAW in reaching its decision to deny a permit.

The MPCA includes its permitting staff early in the EAW process. Before an EAW is released for public comment, the permit staff and the environmental review staff review the document and make whatever changes as needed. Although the environmental review staff does not track projects after they complete the environmental review process, the involvement of permitting staff helps ensure that mitigation measures discussed in the EAW are included in permitting decisions.

Four of the case studies illustrate some of the issues that have arisen regarding environmental review and permitting. In the Hancock case, MPCA incorrectly issued permits while the project was undergoing environmental review. As the first connected actions EAW that MPCA had prepared, the error with permitting may have been due to the newness of that type of review. Woodview Pork, another connected actions EAW that was reviewed about a year later, did not have the same problems with permitting.

With ValAdCo, one of the first large feedlot operations to be reviewed, the MPCA identified significant information needs late in the EAW review process. In this case, the MPCA reached a compromise on the issuance of permits and, after the EAW review was technically completed, the Agency opted to issue interim permits and gather the additional information before a final permit was issued.

For Northern Plains Dairy, the MPCA became aware that construction was taking place on the site prior to completion of the environmental review and before a permit had been issued. In this case, the EAW process was temporarily suspended and enforcement action was taken against the proposer.

River Ridge was the one exception to the cases studied where the permit did not reflect the mitigation identified in the EAW. The EAW called for continuous air monitoring, but the permit did not. The lack of public comments on the EAW may have had an influence on the dropping of the air monitoring requirements.

Mitigation measures and alternatives

Unlike an EIS, an EAW does not require an extensive examination of alternatives. The final question on both the standard form and the new feedlot EAW form asks for a discussion of alternatives and mitigative measures in the summary of issues.

Some of the EAWs specifically list alternatives and mitigative measures but most do not. Often, mitigation measures are developed during the EAW review process and are incorporated into permit conditions. Additionally, in some of these cases, alternatives and mitigation measures appear to have been negotiated and added to the project without being included as specific permit conditions. The proposer of the Farmers Isowean agreed to add a biofilter and to change the location of some of the manure spreading areas to mitigate potential impacts raised in the EAW review. Northern Plains Dairy proposed alternative sites to avoid impacts.

Impact on Development

Some concern has been expressed that environmental review imposes too great a burden on feedlot development and expansion. Of the nine cases reviewed, three were not built. One project, Woodview Pork, was denied its county permit and the project ended (this also coincided with a downturn in the hog market). Farmers Isowean was withdrawn due to market conditions. Golden Oval is the only one of the cases studied where the project was withdrawn in the face of considerable public opposition and the likelihood that an EIS would be required. Based on this limited sample, it does not appear that the EAW process is a major barrier to project development.

Development of New Information

These case studies illustrate the development of information that has been generated about the potential impacts of feedlots. For the ValAdCo EAW the staff was clearly "feeling its way" and trying to identify the information needed to review large feedlot operations. The development of air modeling (as used in the Hancock project and later projects) provided a useful tool to assess potential impacts. It also helped the Agency deal with the issue of odor impacts that had not been quantified before.

Broader Assessment of Impacts

The case studies demonstrate MPCA's efforts to address environmental impacts that may occur in addition to the project specific impacts. Since permits are limited to project specific review, EAWs have been the only method used to provide a broader analysis of environmental impacts.

EQB rules require that the cumulative potential effects of related or anticipated future projects must be considered when deciding the need for an EIS. The standard EAW form allots one question to this issue and asks if there are future stages of the development planned, whether the project is part of a subsequent stage of an earlier project, or whether other development is anticipated on adjacent lands. The new feedlot EAW form also allots one question to the issue but asks for a more open-ended discussion of cumulative impacts.

In the Golden Oval project, MPCA attempted to address the cumulative impacts issue. In part of the staff recommendation to prepare an EIS on this project, the issue of cumulative air quality impacts from the proposed Golden Oval project combined with the two existing ValAdCo hog operations and the Southern Minnesota Beet Sugar Cooperative operation was raised.

Another effort to look at the broader impacts involved using the connected actions provisions of the EQB rules to address large, multi-site feedlots. Both Hancock and the Woodview Pork were connected actions EAWs. Recent legislative changes have made connected actions no longer applicable for feedlot EAWs.

Chapter 6 examines the issue of cumulative impacts and recommends that cumulative impacts continue to be addressed in EAWs for feedlots. However, the state should assist this analysis by providing background levels of air and water quality to aid in assessing the impacts of a particular project proposal.

Conclusions

Very Few Feedlots Undergo EAW Review

During the five years from the beginning of 1993 to the end of 1997, there were only 47 EAWs prepared for feedlots. During that same time, 3767 feedlots received permits. EAWs were prepared for only 1.2% of the facilities permitted during that time. The vast majority of feedlot facility proposers do not prepare an EAW and this is not likely to change.

No EISs have been prepared for feedlots. One project has had a court ordered EIS (Hancock Pro-Pork), but work on that EIS is stalled, pending discussions on payments of the cost.

The increased number of feedlot EAWs anticipated by the Auditor's study did not materialize. The recent changes to the process to reduce the mandatory category to 1000 AU and to drop the connected actions provisions for feedlots so far has not had a noticeable impact on the number of projects undergoing review. It appears that the only factors likely to cause a change in the number or percentage of EAWs prepared is a major change in the environmental review requirements or a substantial increase in the development of new or expanded large feedlot facilities.

The EAW Process Serves Its Mandated Purpose

Three main purposes for the environmental review process are identified in the EQB rules and are discussed at the beginning of this chapter. The case studies indicate that the EAW serves all these purposes well.

First, the EAWs provide accurate information early in project development. The MPCA staff appears to work diligently with local authorities and project proposers to develop clear and understandable information regarding the project before the EAW is distributed. The EAWs are distributed to a variety of agencies and are made available to residents and other interested members of the public. The number of comment letters received on many of the projects indicates the level of interest regarding the EAW.

Second, the EAWs provide an avenue for public involvement. Many of these projects are controversial and neighbors and the general public will demand to be involved in the

review. Although there was some concern expressed that EAWs open a project up to too much public attention, it appears that an EAW may actually be beneficial for a controversial project. The EAW provides an orderly method for providing information and receiving comments within a specified time limit. As noted earlier, the EAW may serve to reduce the number of rumors that may be circulating about a controversial project. By providing accurate project information, requiring comments within a specified time frame and having MPCA staff summarize and respond to the comments, discussion and disagreements about a project can be focused and often resolved.

Third, the EAW process provides information that is used in permits. The EAWs frequently identify some issues regarding potential environmental impacts that can be mitigated. Encouraged by the involvement of MPCA permit staff throughout the EAW process, these mitigation measures usually, but not always, become permit conditions. Counties also have used the EAWs in their review of projects and include mitigation measures from the EAW into their permits.

Recent Changes May Impact the EAW Process

A number of changes have taken place recently that may impact the EAW process. The mandatory categories for EAW preparation have changed. Connected actions can no longer be considered for feedlots. Individual NPDES permits are to be noticed concurrently with an EAW when practicable. Air quality modeling for EAWs is restricted to only those types of facilities that have had a hydrogen sulfide emission violation.

Since these changes are recent, it is difficult to assess what impact they may have on the environmental review procedures for feedlots. MPCA staff has reported no noticed changes to the program at this point. However, these provisions are likely to reduce the flexibility of environmental review and reduce the ability to develop information needed to assess impacts and use the information to mitigate impacts.

The new EAW form appears to be an improvement. Since it is also a fairly recent change, there has not been much experience with it. However, by being designed for feedlot review only, the questions on the form are clearer and more to the point. Most project proposers still will need to hire consultant help to fill out the revised form. Although having the form simplified to the point where it could be easily filled out by a project proposer was suggested as a goal, it is not a realistic one. A competent environmental review would require a variety of technical knowledge that would be difficult for most individuals to supply.

Recommendations

The environmental review process impacts a small proportion of the feedlot developed each year. For the projects that undergo environmental review, the process has proved to be an effective way to disseminate information, involve a wide audience, develop information about potential environmental impacts, and recommend mitigation measures that are implemented into project development. Because of that, we do not recommend any major overhaul of the process but do recommend some improvements.

Better Record-Keeping by MPCA

The MPCA lacks adequate records to determine whether all projects that should undergo environmental review are in fact undergoing review. It also lacks information about the projects that have undergone environmental review.

In 2000, 51 permits were issued by MPCA for feedlots over 1000 AU. If these were all for new or expanding feedlot operations, all should have undergone EAW review (since 1000 AU is the mandatory category for new or expanding feedlots). However, 5 EAWs were prepared in 2000. Without adequate records of the types of projects these 51 permits were issued for, it is not possible to determine whether projects that should have undergone environmental review were “missed” or whether these permits were issued for existing facilities that would not be subject to environmental review rules. The MPCA should upgrade its database to provide basic project information regarding the projects that they permit.

As noted earlier, MPCA does not maintain comprehensive records of the EAWs that are prepared by the Agency. Without going through individual files, it is impossible to determine the type and size of projects that have undergone EAW review. The MPCA has some general aggregate information about total numbers of EAWs prepared since 1998. However, the MPCA should upgrade its database to record the petitions received for EAWs, the outcome of the petitions, the EAWs that are prepared, dates and a brief description of the project, its main issues, its size and location. Since there are so few EAWs done per year, this record keeping would not be difficult or time consuming. Since there has been some concern regarding the perceived burden that environmental review may pose for feedlot development, accurate information reflecting the actual number and size of feedlots undergoing environmental review could be useful.

Examine County Training Needs

MPCA should examine the training provided to counties (both delegated and non-delegated) regarding environmental review. During this study, we observed some confusion in counties on how to prepare an EAW, what level of involvement the county should have as an RGU, who should pay for preparation of an EAW and how the information in an EAW can be used in county deliberations. As this study also demonstrates, it took MPCA awhile to develop ways to address feedlots effectively in an EAW. MPCA should share this expertise with the counties. Informational materials or training classes for county staff could be used to cover these issues.

Develop an “Animal Feedlot EAW”

To date, there has been no EIS prepared for a feedlot. Although that does not mean that there will never be an EIS prepared on a feedlot project in Minnesota, it does indicate that most environmental review has been and will likely be accomplished in EAWs. Therefore it is prudent to look at ways that EAWs can be modified to best meet the needs of environmental review for feedlots.

A special “feedlot EAW” form already exists using a new form designed specifically for feedlots. This form should continue to be used but two improvements should be made:

- Mitigative measures and alternatives. Question 12 of the new form asks for a summary of issues and discussion of alternatives and mitigative measures. This is a good starting point, but often alternatives and mitigation measures are identified during the EAW review process. The EAW should require that a negative declaration statement clearly state the issues that have come out in the process, and the alternatives and mitigation measures that can be used to address these issues.

The RGU can specifically state which alternatives or mitigation measures they intend to require for issues over which they have jurisdiction. However, the negative declaration should also list those issues that are outside the jurisdiction of the RGU. This would be particularly helpful for county boards who have to review a project that has had an EAW. If a negative declaration from the RGU gives the impression that everything is fine with the project, then county boards are put in a difficult position. By listing unresolved issues in the negative declaration, these issues can then be considered in the appropriate forum.

- Cumulative impacts. Question 11 of the new form addressed cumulative impacts. As discussed in Chapters 4 and 6, the state and other entities should develop a database of background information for air quality and water quality. This information would be available to feedlot proposers to assess the cumulative impacts of proposed construction or expansion. This database could be developed as part of the GEIS or as a separate project.

Reexamine Restrictions on Information for Environmental Review

Over the last few years, the Minnesota Legislature has passed several measures that have chipped away at the effectiveness of environmental review for feedlots. The changes appear to have been made in a piecemeal fashion with no overall plan regarding the final program outcomes.

Most of the changes have occurred too recently to fully assess what impacts they will have on the environmental review of feedlots. However, as discussed in this chapter, and others, some of these measures have the potential to have significant consequences. Once the GEIS is completed and specific recommendations regarding improvements to managing feedlots have been formulated, it would be wise to reconsider the changes that have been made and determine whether they were warranted and whether they meet reasonable goals for wise management of the states' resources.

Chapter 6

CUMULATIVE IMPACT

Introduction

The combined but incremental effects of human activities can pose a serious threat to the environment. While the individual impacts may be minor or insignificant by themselves, cumulative impacts can accumulate over time and from one or more sources and result in a significant impact.

In the regulations for implementing the 1969 National Environmental Policy Act (NEPA), cumulative effects are defined but very little direction is given regarding how cumulative impact analysis is to be accomplished. Federal agencies have independently developed procedures to address the issue. But, as the Council on Environmental Quality (CEQ) commented in a 1997 report, the agencies have had mixed results with their methods and procedures.

Minnesota environmental review rules also define cumulative impact and require that cumulative impacts be addressed in deciding the need for an environmental impact statement. As is the situation on the federal level, little guidance is given regarding how this issue is to be addressed.

The Minnesota Pollution Control Agency has attempted to address cumulative impacts in the environmental review of feedlot operations. As discussed in other chapters of this Technical Work Paper, large feedlot operations that require environmental review are a relatively new phenomenon in the state. Methods to adequately identify and assess the impacts of these facilities are evolving and the efforts to address cumulative impacts for feedlots are also evolving.

National Environmental Policy Act Regulations

The National Environmental Policy Act regulations define cumulative impact as: “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” 40 C.F.R. section 1508.7. The regulations require that a federal agency consider “cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.” 40 C.F.R. section 1508.25(a)(2). Because the definitions and the applications of cumulative impact in federal law are similar to the way it is defined and applied under Minnesota law, it is appropriate to consider how the federal courts

have interpreted the cumulative impact requirement and the guidance issued by the federal Council on Environmental Quality for implementing NEPA.

Federal Cases

Several federal courts have addressed aspects of cumulative impact. In *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F. 3d 800 (9th Cir. 1999), the court observed “In *City of Carmel-By-The-Sea v. U.S. Dept. of Trans.*, 123 F. 3d 1142 (9th Cir. 1997), we noted that an EIS ‘must catalogue adequately the relevant past projects in the area.’ It must also include a ‘useful analysis of the cumulative impacts of past, present, and future projects.’ This requires ‘discussion of how [future] projects together with the proposed...project will affect [the environment].’ The EIS must analyze the combined effects of the actions in sufficient detail to be ‘useful to the decisionmaker in deciding whether, or how, to alter the project to lessen cumulative impacts.’ Detail is therefore required in describing the cumulative effects of a proposed action with other proposed actions.” *Id.*, at 810 (citations omitted).

In *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F. 3d 1372, 11379 (9th Cir. 1998) the court held that “the forest service must ‘consider’ cumulative effects. To ‘consider’ cumulative effects, some quantified or detailed data is required. Without such information, neither the courts nor the public, in reviewing the Forest Service’s decisions can be assured that the Forest Service provided the hard look that it is required to provide.... General statements about ‘possible’ effects and ‘some risk’ do not constitute a ‘hard look’ absent a justification regarding why more definitive information could not be provided...Nor is it appropriate to defer consideration of cumulative impacts to a future date. ‘NEPA requires consideration of the potential impact of an action *before* the action takes place.” (Citations omitted.)

In *Resources Ltd., Inc. v. Robertson*, 35 F.3d 1300, 1306 (9th Cir. 1993), the court observed “the Forest Service says that cumulative impacts from non-Federal actions need not be analyzed because the Federal government cannot control them. That interpretation is inconsistent with 40 C.F.R. section 1508.7, which specifically requires such analysis. Nor is the regulation impossible to implement, unreasonable or oppressive: one does not need control over private land to be able to assess the impact that activities on private land may have in the Forest.”

In *Society Hill Towers Owners’ Ass’n v. Rendell*, 210 F. 3d 168, 182 (3rd Cir. 2000), the court held that “NEPA only requires consideration of the cumulative impact of proposed, and not merely contemplated future actions. Where future development is unlikely or difficult to anticipate there is no need to study cumulative impact.” However, the federal courts have held that “where several foreseeable similar projects in a geographical region have a cumulative impact, they should be evaluated in a single EIS.” *LaFlamme v. Federal Energy Regulatory Commission*, 852 F. 2d 389, 401-02 (9th Cir. 1988).

Council on Environmental Quality Cumulative Effects Handbook

In January of 1997 the Council on Environmental Quality published a handbook on conducting cumulative effects analysis entitled “Considering Cumulative Effects Under

the National Environmental Policy Act.” The handbook notes “the continuing challenge of cumulative effects analysis is to focus on important cumulative issues, recognizing that a better decision, rather than a perfect cumulative effects analysis, is the goal of NEPA and environmental impact assessment professionals.” *Id.*, at vii. “Without incorporating cumulative effects,” the handbook points out, “it will be impossible to move towards sustainable development...” *Id.*, at 3. The handbook observes “cumulative effects analysis necessarily involves assumptions and uncertainties, but useful information can be put on the decision-making table now. Decisions must be supported by the best analysis based on the best data we have or are able to collect....Where substantial uncertainties remain or multiple resource objectives exist, adaptive management provisions for flexible project implementation can be incorporated into the selected alternative.” *Id.*, at 3. Two tables in the handbook are particularly helpful in looking at the issue of cumulative effect analysis. These two tables are included as Attachments 1 and 2.

Of course, NEPA only addresses “federal action” in contrast to MEPA that also covers private activities subject to state approval. Still the handbook is helpful in thinking about how cumulative effects analysis could be managed under MEPA.

Minnesota Rules

Minnesota Rules part 4410.0200, subpart 11 defines “cumulative impact” as those which “result from *incremental effects* of the project *in addition to other past, present and reasonably foreseeable* future projects *regardless of what person* undertakes the project. Cumulative impacts can result in individually minor but collectively significant projects taking place over a period of time.” (Emphasis supplied.) Minnesota Rules part 4410.1700, subpart 7 sets out the criteria for determining whether the potential environmental impacts of a proposed project may be “significant” requiring the preparation of an environmental impact statement. Included among the criteria is the “cumulative potential effects of related or anticipated future projects.” Minnesota Rules part 4410.1700, subpart 7(B).

Minnesota Rules also provide for additional methods to address impacts beyond a single specific project impact. These related concepts, which include connected actions, phased actions and related actions, can be used to help address the issue of cumulative impacts but do not constitute cumulative impact analysis by themselves. These related concepts are discussed later in this paper.

Environmental Assessment Worksheets

Minnesota law does not require that cumulative impacts be assessed in an Environmental Impact Statement. Rather, cumulative impacts must be considered in determining the need for an EIS. Therefore cumulative impacts are included in EAW review since EAWs are used to assess the need for an EIS.

In the standard form for EAWs, question 29 addresses the issue:

“**Cumulative impacts.** Minn. R. 4410.2700, subp. 7, item B requires that the RGU consider the “cumulative potential effects of related or

anticipated future projects” when determining the need for an environmental impact statement. Identify any past, present or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative impacts. Describe the nature of the cumulative impacts and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to cumulative impacts (or discuss each cumulative impact under appropriate item(s) elsewhere on this form).”

In the new Alternative EAW Form for Animal Feedlots, the question of cumulative impacts is included in with “other potential environmental impacts,” question 11:

If the project may cause any adverse environmental impacts not addressed by items 1-10, identify and discuss them here, noting any proposed mitigation. This includes any cumulative impacts caused by the project in combination with other existing, proposed and reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative impacts. Examples of cumulative impacts to consider include air quality, stormwater volume or quality and surface water quality. *(Cumulative impacts may be discussed here or under the appropriate item(s) elsewhere on this form.)*

A review of the EAWs that were examined for Chapter 5 of this TWP indicates that there is wide variation in the way cumulative impacts have been addressed. Clearly, MPCA’s approach to the issue of cumulative impacts for feedlots has been evolving in the last few years. The 1993 EAW for ValAdCo merely noted that no future stages of the project were anticipated and there were no cumulative impacts. In the 2000 EAWs for Becker Farms and Reiland Farms, there was considerable discussion about air quality impacts in the area and also discussion about global issues such as atmospheric acidity, ozone depletion and global warming.

Of the EAWs that discussed cumulative impacts in a meaningful way, the issues of manure application (and its possible impact on surface water quality) and air quality were the issues addressed most often. Other than identifying it as a potential problem, none of the reviewed EAWs attempted to evaluate or quantify the cumulative impacts of manure application. However, MPCA has made an attempt to address cumulative air quality impacts.

MPCA’s Approach to Cumulative Air Quality Impacts

MPCA’s evolution in assessing cumulative impacts has been most evident in air quality. In 1993 (ValAdCo) and 1997 (Hancock Pro-Pork) cumulative impacts were given little attention in the EAW. By 1998, two projects (Farmers Isowean and Woodview Pork) addressed air quality for hog operations and considered sites within a 2-3 mile radius. It is interesting to note that the Golden Oval project, which was not a hog operation but a proposal for poultry, did not consider air quality as an issue in the EAW. However, in the MPCA staff findings of fact prepared for the project (findings are prepared after the

EAW is circulated for comment), the issue of other large facilities in the area that emit hydrogen sulfide and ammonia was included as a reason to order an EIS for the project.

By 1999, MPCA was considering other feedlots in a 5.5-mile radius in looking at cumulative air quality impacts. The EAWs prepared in 2000 looked at the 5.5-mile radius and calculated the number of animal units per acre in that area to determine if air quality modeling was needed for the project.

The District Court in the Hancock Pro-Pork case found that MPCA needed to improve its methods to evaluate air quality cumulative impacts. As a result of that decision and in response to other concerns about the issue, the MPCA has issued two guidances regarding cumulative air quality evaluation.

In a January 1999 memo, MPCA staff developed an evaluation guidance to address feedlot air emissions. The plan suggested the 5.5-mile radius based on a report done on Pope/Stevens cumulative air emissions in the Hancock Pork area that showed a 4.9-mile cumulative distance impact. The staff then selected 5.5 miles to provide a margin of protectiveness. The memo also suggested that information regarding the existing feedlots within the 5.5 miles area including the species, number of animal units and any non-feedlot sources of hydrogen sulfide and ammonia be identified. Receptors in the area should be identified. If the average animal unit density exceeds 0.25 animal units per acre, then cumulative air emission modeling would be required. The 0.25 AU/acre was selected since it provides a small margin of protectiveness below the 0.28 density calculated in the Hancock Pork cumulative analysis which found exceedances of the hydrogen sulfide standard within the 4.9 radius.

In April 2000 the MPCA issued another guidance on cumulative air quality for feedlots which replaced the previous one. For an EAW, a project proposer may have to conduct air emission and ambient air quality modeling for hydrogen sulfide to determine compliance with state ambient air quality standards. If they do modeling, they need to use a background number value that is derived using EPA guidelines. The background number is to be used to account for the cumulative air quality effects of multiple feedlots and other hydrogen sulfide sources. A facility proposer may opt to apply mitigation measures to address air quality concerns in lieu of conducting air quality modeling.

Minnesota Cases

In *City of Minneapolis v. Minnesota Pollution Control Agency*, MC 96010119 (Fourth Judicial District, March 31, 1998) involving a proposed auto crusher known as a "Kondirator," the State argued that the environmental review rules only required the MPCA to take into account the cumulative impact of related or anticipated "projects," not more generalized background pollutant levels. The court rejected this distinction and remanded the case to the City for further environmental analysis concluding "there is no question about the fact that the risks associated with Kondirator emissions...could cumulate with existing contaminants to exceed human health risk levels." *Id.*, at 48.

Minnesota courts have also addressed the issue of cumulative impact in the context of projects where there are related facilities that are not part of the environmental assessment and where construction of a project might be phased over time. In *Pope County Mothers v. Minnesota Pollution Control Agency*, 594 N.W. 2d 233 (Minn. App. 1999) the court noted “where, as here [where there were several hog finishing barns associated with a farrowing operation], multiple individual sites are considered a single project, careful assessment of their cumulative environmental effects is critical if the EAW is ‘to set out the basic facts necessary to determine whether an [EIS] is required for a proposed action.’” Since the MPCA did not look at the cumulative impact of all of the facilities the court held that “the MPCA did not engage in reasoned decisionmaking when it failed to consider the cumulative environmental effects of the finishing sites.”

In *Fillmore County Residents Concerned for Health v. Minnesota Pollution Control Agency*, No. CX-00-306 (Third Judicial District, December 22, 2000) the court found a strong possibility existed that the proposed facility would expand within a limited period of time. The court then noted that “the law is explicit that large projects must not be broken up into smaller units in order to avoid environmental review....The rules governing environmental review recognize that cumulative impacts can result from individually minor but collectively significant projects taking place over a ‘period of time.’”

Other States’ Approaches

Massachusetts

Massachusetts state law requires that projects undergoing environmental review must consider both long term and short term impacts for all phases of the project and the “cumulative impacts of the Project, any other Projects, and other work or activity in the immediate surroundings and region.” Projects that are proposed by a state agency undergo a more extensive cumulative impact analysis. However, private projects also are examined for cumulative impacts. For private projects, sometimes cumulative impacts are addressed as a “no-build” alternative. For certain pollutants, all sources of pollution in an area (not just the industry of the proposed project) are considered when the background levels are established. Projects have been denied or modified if the cumulative impact analysis showed that the project would bring pollution levels up too close to regulatory levels. There have been some court challenges based on the adequacy of cumulative impact assessments but those have generally not been successful.

Massachusetts does four to five generic EIRs (EIRs are the equivalent of Minnesota’s EISs). These are done for programs (such as mosquito control and aquatic weed control) and for specific sites (such as Logan Airport where the cumulative impact analysis considered the impacts of other projects going on in the area and extended beyond the state’s boundaries).

New York

New York also has provisions requiring cumulative impact analysis in their environmental review. Consideration of cumulative impacts has generally been more

successful for program analysis than for specific projects. The state does not have a clearly articulated standard for cumulative impact analysis and agencies tend to make up their own standards as they go along. An advisory group was formed to examine the issue and a report was produced in 1998. The recommendations of that group have not been officially implemented but are used as a guide for practitioners.

The advisory group recommended that cumulative impact should be defined as “the effect of an action itself and the effects of other actions, which taken together substantially increase or substantially accelerate an effect on the same aspect(s) of the environment. The lead agency is responsible for determining a reasonable period of time and a reasonable geographic area within which the actions and effects are to be considered.”

In their report, the advisory group included an example of the way they envisioned cumulative impacts:

An often used example within the Group involved a fictional pristine lake in Central New York. Around that lake there exists 50 homes, all with lake front rights. Although docks are permitted, no docks have been erected on the lake. Owner A requests a dock from the local authorities, and the dock application is filed. The question is whether Owner A must justify the lack of environmental impact by his/her dock alone or whether Owner A must be made to do a complete environmental impact study as if every owner on the lake had erected a dock, even though at the time of Owner A's application, no other dock applications were pending before the agency. It is suggested that the resolution of this problem is easy: Owner A need only analyze the impact of his/her dock. Owner B must analyze the impact of all the prior docks already before him on the lake. There may be some point where the dock of an owner taken together with all the other existing docks on the lake will have a substantial detrimental impact on the common resource, (*i.e.* the lake), and appropriate mitigation measures must be imposed on that owner. Thereafter, the permitting authority should remove docks as permitted uses on the lake. In cases where a comprehensive plan has been prepared with the appropriate SEQRA analysis, the plan would establish up-front the ultimate “build-out” limits around the lake. No cumulative analysis would be required from any owner so long as they do not exceed the limits that are established in the plan. Report of the Cumulative Impact Working Group, November 4, 1998

Methods of Addressing Cumulative Impacts

Since the specific ways to address cumulative impacts are not included in legislation or rules, federal agencies have had to develop their own ways of addressing the issue, often on a case-by-case basis. In a recent paper by the EPA's Office of Federal Activities (Consideration of Cumulative Impacts in EPA Review of NEPA Documents, May 1999), a number of ways of approaching cumulative impact assessment are discussed. Although

these approaches refer to federal projects, they could be applied to private projects undergoing state review as well.

Resources

A cumulative analysis should identify which resources and ecosystem components are impacted by the proposed action and other actions. This can be determined by examining whether the resource is especially vulnerable to incremental effects and if other activities in the area have had similar effects on the resource. NEPA documents generally have considered only a limited number of resources that may be affected by cumulative impacts. These have generally been limited to selected game species, federally or state listed threatened and endangered species and wetlands habitats. This report urges that this is too narrow and that other valuable resources could be affected.

Geographic Boundaries and Time Periods

The study suggests that selection of geographic boundaries and time period should be based on the natural boundaries of resources of concern and the period of time that the proposed action's impacts will persist, even beyond the project life. The length of time extends as long as the effects, singly or in combination with other anticipated effects, may be significant on the resources of concern.

Past, Present, and Reasonably Foreseeable Future Actions

The adequacy of cumulative impact analysis depends on how well the analysis considers impacts that are due to past, present, and reasonably foreseeable actions. This could consider whether the environment has been degraded and to what extent, whether ongoing activities in the areas are causing impacts, and what the trends for activities in the area are.

A critical question for this type of analysis is what future actions are reasonably foreseeable. EPA generally directs that future actions that are speculative do not need to be considered in the analysis. For private actions, analysis should use regional and local planning documents or projected development trends to determine the likelihood that a future project will be developed.

Describing the Condition of the Environment

The magnitude and significance of cumulative impacts should be established by comparing the environment in its naturally occurring state with the expected impacts of the proposed actions when combined with the impacts of other actions. If it is not possible to establish the naturally occurring condition, a description of a modified but ecologically sustainable condition can be used in the analysis. In this context, ecologically sustainable means the system supports biological processes, maintains its level of biological productivity, functions with minimal external management, and repairs itself when stressed.

Two methods for depicting the environmental condition include use of the no-action alternative and an environmental reference point. The no-action alternative is usually used as a benchmark for comparing the proposed action and alternatives to existing

conditions. Therefore it should incorporate the cumulative effects of past activities and accurately depict the condition of the environment. The environmental reference point includes the natural condition of the ecosystem or some modified but sustainable ecosystem condition.

Thresholds

Thresholds can be used to identify whether a resource has been degraded and what impacts other projects may have on it. Thresholds can be quantitative with specific numerical standards (such as dissolved oxygen content to assess water quality) or qualitative standards that consider biological components of an ecosystem. Thresholds should have some measurement that will report the change in resource condition in meaningful units. This change is then evaluated in terms of both the total thresholds beyond which the resource degrades to unacceptable levels and the incremental contribution of the proposed action to reaching that threshold.

Related Concepts

Both the federal government and Minnesota have included provisions in environmental review that look at impacts beyond those of a specific project proposal. These related concepts can help to address the overall issue of cumulative impacts.

Cumulative Impacts vs. Cumulative Actions

In a 1990 article by Terrance Thatcher (Environmental Law, Vol. 20:611), several court cases involving cumulative impacts are examined. In reviewing federal projects, researchers have asked what projects should be included in a cumulative impact analysis and should all projects, even those that are speculative, be included.

The problem is not the requirement to consider the impacts of past and present actions. The effects of past and present actions have created the “existing environment” and to assess the impacts of a proposal on the existing environment is the purpose of an EIS. The problem arises when an agency must decide how to address the cumulative impacts of its proposal in conjunction with “reasonably foreseeable future actions.” Although some court decisions discussed by Thatcher indicate that only concrete proposals need to be considered for cumulative impact analysis, the CEQ regulations and other court decisions make it clear that the obligation to address cumulative impacts is not limited to actual proposals.

Under CEQ regulations, all cumulative actions that are actually proposed are to be considered in the same EIS. Cumulative actions are defined as “actions which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.” 40 C.F.R. 1508.25(a)(2). Unlike the projects considered under cumulative impacts, which can be “reasonably foreseeable” for actual development, projects considered as cumulative actions are actually proposed for development.

Connected Actions

Under CEQ regulations, connected actions include actions that “(i) [a]utomatically trigger other actions which may require environmental impact statements (ii) [c]annot or will not proceed unless other actions are taken previously or simultaneously (iii) [a]re interdependent parts of a larger action and depend on the larger action for their justification.” Thatcher discusses a case where the Forest Service prepared an EA for a twenty-mile forest road and concluded that the project would have no significant impact. However, the environmental effects of the timber cutting that would follow construction of the road were not addressed. The court required the Forest Service to consider the timber cutting with the road construction since the road had no justification except as access to timber. Thatcher states that the two actions were perfectly connected actions.

Minnesota law also allows for consideration of connected actions for environmental review. Connected actions are defined in Minnesota Rules part 4410.0200, subpart 9b as projects that are determined to be related in any of the following ways:

- One project would directly induce the other;
- One project is a prerequisite for the other;
- Neither project is justified by itself.

The connected action provisions have been applied to feedlot operations when large multi-site facilities were reviewed. In 2000 the Minnesota Legislature exempted feedlot operations from the provisions of connected actions.

Phased Action

Another method in Minnesota rules to address issues beyond a single specific project is through a phased action. Phased action is defined a “two or more projects to be undertaken by the same proposer that a RGU [responsible governmental unit] determines:

- A. will have environmental effects on the same geographic area; and
- B. are substantially certain to be undertaken sequentially over a limited period of time.

Related Actions

Minnesota rules provide for the examination of related actions in a “related actions EIS.” “An RGU may prepare a single EIS for independent projects with potential cumulative environmental impacts on the same geographic area if the RGU determines that review can be accomplished in a more effective or efficient manner through a related actions EIS.”

Secondary or Indirect Effects

Federal projects are required to address secondary or indirect effects. This is closely related to the cumulative impact concept of reasonably foreseeable development. The example Thatcher cites of secondary effects is a case where the Department of Transportation prepared an environmental analysis of a freeway interchange. The analysis looked at only the impact of the roadway itself and did not address the development that would occur due to the interchange, because that development would be private. The court called the interchange-induced development a secondary impact and required it to be considered. Newer CEQ regulations call this an indirect effect.

Fairness Issue

One of the critical issues for addressing cumulative impacts for private projects is fairness. If a project is proposed, should that project be required to assess the impacts caused by projects that have occurred before? Should a project be modified or denied due to other developments in an area or even due to future developments that may occur? If a proposed project undergoes cumulative impact review, should that project bear the cost of analyzing the impacts caused by other, existing facilities?

Clearly nearly all developments are influenced by existing developments. Project sites are selected due to access to transportation, suppliers, markets, or other developments. No developments take place in a vacuum. All projects take other developments into consideration when selecting suitable sites for development. Thus it is not unreasonable to assume that a proposed project should have to consider other developments and some aspect of the cumulative impacts of those other developments.

However, the extent of that examination of cumulative impacts raises a fairness issue. If a feedlot is proposed in an area that already has a number of large operations, should the proposed feedlot bear the full cost of assessing the impact that the existing feedlots are having on the environment? Should the existing feedlots help with the assessment even though they gain nothing by doing so? Should other, non-feedlot operations become involved if they are having a possible impact on the environment that could affect the new proposal? Should the new project be subject to denial based on the impacts created by existing developments or should all the existing developments be required to reduce their impacts to accommodate the new development?

Again, if we are to provide some type of environmental protection, it is clear that not every proposed project is entitled to be built. There should be some consideration for the capacity of the environment to withstand certain levels of pollution. Therefore an assessment of the cumulative impacts is warranted. But who pays for the assessment and whether proposed projects should be delayed while that information is gathered (even if someone other than the proposer is paying for the study) needs to be determined.

The fairness issue can perhaps best be addressed if we look at different levels of cumulative impact analysis. While it may be appropriate for project developers to analyze certain types of cumulative impacts, government may better address other types. And certainly, while some of the cumulative impacts should be considered, some in depth evaluations may go beyond the state's ability to control.

Levels of Cumulative Impact Assessment

Based on the literature discussed above and the issues that MPCA has raised when trying to address cumulative impacts for feedlot proposals, it appears that cumulative impacts can be divided into four levels:

World View Issues

Recent EAWs prepared by MPCA have discussed large issues including global warming, atmospheric acidity, and ozone layer depletion. Animal agriculture is the largest source

of ammonia contributing to atmospheric acidity in the United States and in Minnesota. (Becker Farms, EAW) In the state of Minnesota, animal husbandry is considered one of the principal sources of greenhouse gases or their precursors. Obviously these are issues that need discussion and should be considered. However, until standards or guidelines for states, regions, or smaller areas are established, it is difficult to assess in any meaningful way the impact that a single project could have on this wider issue.

Feedlot Macro Issues

These issues are the “big picture” issues that relate to feedlots. While these may consider the world view issues, they focus on the impacts resulting from feedlots. These issues are being examined in the Generic Environmental Impact Statement.

The GEIS is to include information about water quality impacts associated with animal agriculture and to analyze existing water quality data in each of the nine Minnesota river basins and within the vicinity of feedlots. The GEIS also is to include data regarding air quality and an identification of patterns of air quality impacts. The air quality study is also directed to consider any related cumulative air quality impacts in doing the analysis of the data.

This information should be presented in a manner that it can be used by project proposers and RGUs in the preparation of an EAW, and, as discussed in Chapter 8, will need to be updated periodically to remain useful.

Existing Conditions Information

As discussed in Chapter 4, there are substantial efforts underway to gather information regarding the environmental conditions in Minnesota. The information that is available should be integrated with the new feedlot registration program and made readily accessible to regulators, farmers and the public. This information could be used to identify the existing condition levels, or the “no-build” alternative, for cumulative impact analysis.

Once existing conditions have been identified, the anticipated impacts of the project can be measured against several levels. As discussed above, the significance of cumulative impacts can be established by comparing an ecologically sustainable condition to the expected impacts of the proposed actions combined with the impacts of other actions. Thresholds could also be used as a standard to measure the cumulative impacts of a project. Regardless of whether the measurement is established at a sustainable environment or at a threshold level, the anticipated impacts can be layered onto existing condition information and these cumulative impacts can be assessed against one of the standards.

Identification of area wide information could be accomplished as part of the GEIS. The GEIS is examining air and water quality issues associated with feedlot operations. This study could be expanded to include a statewide assessment of target pollutants identified on a regional or smaller basis.

This information can be developed by the state alone or by the state in conjunction with other entities. Some of the agricultural associations may be able to help gather data. Such a sharing of data gathering would further help to address the fairness issues by involving the producers already in operation.

Project Level Impacts

Project proposers should address a third level of cumulative impact. Clearly project proposers would be responsible for providing information regarding the impacts likely to be generated by their own development (such as air pollution generation).

In addition, the project proposer should be responsible for information regarding reasonably foreseeable future projects as well as any related projects. This type of analysis would involve identification of the number of similar operations within a given radius of the project, a discussion of the likelihood of other projects being developed in the near future (this might require reference to market trends, local land use plans and any current project proposals), and any related projects (including additional phases of the proposed project and any developments that might be built to support the project). These issues are things that should be considered by a project proposer when a project is planned (even if no environmental review is required) or local planning agency and should not put any unusual burden on a project proposer.

A cumulative impact assessment for a feedlot should use the existing conditions information with the feedlot macro information and the project specific impacts layered onto it. Although the worldview issues need to be considered, it is unlikely that they can be addressed in a meaningful way in a project specific review. By dividing the responsibility for developing the information, however, the burden of the cumulative impact review is lessened and the quality of the review improved.

Attachment 1

Table 1-2. Principles of cumulative effects analysis	
1. Cumulative effects are caused by the aggregate of past, present, and reasonably foreseeable future actions.	The effects of a proposed action on a given resource, ecosystem, and human community include the present and future effects added to the effects that have taken place in the past. Such cumulative effects must also be added to effects (past, present, and future) caused by all other actions that affect the same resource.
2. Cumulative effects are the total effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who (federal, nonfederal, or private) has taken the actions.	Individual effects from disparate activities may add up or interact to cause additional effects not apparent when looking at the individual effects one at a time. The additional effects contributed by actions unrelated to the proposed action must be included in the analysis of cumulative effects.
3. Cumulative effects need to be analyzed in terms of the specific resource, ecosystem, and human community being affected.	Environmental effects are often evaluated from the perspective of the proposed action. Analyzing cumulative effects requires focusing on the resource, ecosystem, and human community that may be affected and developing an adequate understanding of how the resources are susceptible to effects.
4. It is not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.	For cumulative effects analysis to help the decisionmaker and inform interested parties, it must be limited through scoping to effects that can be evaluated meaningfully. The boundaries for evaluating cumulative effects should be expanded to the point at which the resource is no longer affected significantly or the effects are no longer of interest to affected parties.
5. Cumulative effects on a given resource, ecosystem, and human community are rarely aligned with political or administrative boundaries.	Resources typically are demarcated according to agency responsibilities, county lines, grazing allotments, or other administrative boundaries. Because natural and sociocultural resources are not usually so aligned, each political entity actually manages only a piece of the affected resource or ecosystem. Cumulative effects analysis on natural systems must use natural ecological boundaries and analysis of human communities must use actual sociocultural boundaries to ensure including all effects.
6. Cumulative effects may result from the accumulation of similar effects or the synergistic interaction of different effects.	Repeated actions may cause effects to build up through simple addition (more and more of the same type of effect), and the same or different actions may produce effects that interact to produce cumulative effects greater than the sum of the effects.
7. Cumulative effects may last for many years beyond the life of the action that caused the effects.	Some actions cause damage lasting far longer than the life of the action itself (e.g., acid mine drainage, radioactive waste contamination, species extinctions). Cumulative effects analysis needs to apply the best science and forecasting techniques to assess potential catastrophic consequences in the future.
8. Each affected resource, ecosystem, and human community must be analyzed in terms of its capacity to accommodate additional effects, based on its own time and space parameters.	Analysts tend to think in terms of how the resource, ecosystem, and human community will be modified given the action's development needs. The most effective cumulative effects analysis focuses on what is needed to ensure long-term productivity or sustainability of the resource.

Attachment 2

Table 2-1. Identifying potential cumulative effects issues related to a proposed action

1. What is the value of the affected resource or ecosystem? Is it:
 - protected by legislation or planning goals?
 - ecologically important?
 - culturally important?
 - economically important?
 - important to the well-being of a human community?
2. Is the proposed action one of several similar past, present, or future actions in the same geographic area? (Regions may be land management units, watersheds, regulatory regions, states, ecoregions, etc.) *Examples: timber sales in a national forest; hydropower development on a river; incinerators in a community.*
3. Do other activities (whether governmental or private) in the region have environmental effects similar to those of the proposed action? *Example: release of oxidizing pollutants to a river by a municipality, an industry, or individual septic systems.*
4. Will the proposed action (in combination with other planned activities) affect any natural resources; cultural resources; social or economic units; or ecosystems of regional, national, or global public concern? *Examples: release of chlorofluorocarbons to the atmosphere; conversion of wetland habitat to farmland located in a migratory waterfowl flyway.*
5. Have any recent or ongoing NEPA analyses of similar actions or nearby actions identified important adverse or beneficial cumulative effect issues? *Examples: National Forest Plan EIS; Federal Energy Regulatory Commission Basinwide EIS or EA.*
6. Has the impact been historically significant, such that the importance of the resource is defined by past loss, past gain, or investments to restore resources? *Example: mudflat and salt-marsh habitats in San Francisco Bay.*
7. Might the proposed action involve any of the following cumulative effects issues?
 - long range transport of air pollutants resulting in ecosystem acidification or eutrophication
 - air emissions resulting in degradation of regional air quality
 - release of greenhouse gases resulting in climate modification
 - loading large water bodies with discharges of sediment, thermal, and toxic pollutants
 - reduction or contamination of groundwater supplies
 - changes in hydrological regimes of major rivers and estuaries
 - long-term containment and disposal of hazardous wastes
 - mobilization of persistent or bioaccumulated substances through the food chain
 - decreases in the quantity and quality of soils
 - loss of natural habitats or historic character through residential, commercial, and industrial development
 - social, economic, or cultural effects on low-income or minority communities resulting from ongoing development
 - habitat fragmentation from infrastructure construction or changes in land use
 - habitat degradation from grazing, timber harvesting, and other consumptive uses
 - disruption of migrating fish and wildlife populations
 - loss of biological diversity

Chapter 7

RECENT GOVERNMENT ACTIONS AND POLICY IMPLICATIONS

In the two years since the GEIS on animal agriculture was initiated, four cases of note have been decided by Minnesota courts, several changes in state legislation have been enacted, the Governor has proposed additional funding for animal agriculture issues in the 2002-2003 budget, EPA has proposed new regulations for concentrated animal feeding operations, and new ideas for promoting environmental improvements have been suggested for the next Federal Farm Bill. Each of these developments is outlined below.

New Minnesota Cases

Recent Minnesota court cases have pointed out the importance to addressing the impacts of all projects associated with a proposed new multi-site animal feeding operation as well as the need to address cumulative impacts, the importance of considering sensitive areas such as Karst areas in the environmental assessment worksheet, and the authority of the counties to deny conditional use permits based on potential health and environmental impacts of feedlots.

Pope County Mothers, et al. v. Minnesota Pollution Control Agency, 594 N.W. 2d 233 (Minn. App. 1999). This case involved an appeal of an MPCA negative declaration for an EIS related to a multi-site farrow-to-finish feedlot. Hancock Pro-Pork, Inc. is a Minnesota corporation whose shareholders are family farm corporations and partnerships. HPP had proposed to build a farrow/nursery facility in Stevens County and expand eight to fourteen finishing sites owned by individual shareholders in Stevens and Pope Counties. Prior to completion of the EAW, the MPCA had issued certificates of compliance authorizing construction to three of the proposed finishing sites and authorized construction at a fourth site through an interim permit only one day after the end of the EAW comment period.

The court noted “where, as here, multiple individual sites are considered a single project, careful assessment of their cumulative environmental effects is critical if the EAW is ‘to set out the basic facts necessary to determine whether an [EIS] is required for a proposed action.’” Since the MPCA did not look at the cumulative impact of all of the facilities the court held that “the MPCA did not engage in reasoned decisionmaking when it failed to consider the cumulative environmental effects of the finishing sites.”

The court also found that the MPCA ignored the potential for significant environmental effects arising from hydrogen sulfide emissions by relying on modeling to predict the level of air pollutant emissions from the facility and monitoring during the permit process rather than preparing an EIS. Citing *Trout Unlimited, Inc. v. Minnesota Dep’t of Agric.*, 528 N.W.2d 903, 909 (Minn. App. 1995), **reviewed denied** (Minn April 27, 1995), the court observed that “deferring the issue to later permitting and monitoring was an

abandonment of the agency's duty to require an EIS where a potential for significant environmental effects exist."

Based on these problems, the court held that MPCA's issuance of a negative declaration was arbitrary and capricious, and remanded the matter to the MPCA for the preparation of an EIS.

Fillmore County Residents Concerned for Health v. Minnesota Pollution Control Agency, No. CX-00-306 (Third Judicial District, December 22, 2000). The Reiland Farms case involved a proposed expansion of a dairy feedlot in Fillmore County from 390 to 560 animal units. The plans include two open manure basins holding a total of 7.3 million gallons of liquid manure with capacity to serve 1,260 animal units. The feedlot is proposed in a karst region and in the vicinity of a trout stream. The MPCA prepared an EAW and issued a negative declaration. The court found the MPCA's decision to be arbitrary and capricious for several reasons. First, the court found that MPCA "neglected its duties when it did not discuss the type, extent, and reversibility of the environmental effects of an underground spill." *Id.*, at 16. The court also found that MPCA failed to consider the likely expansion of the feedlot within a limited time period by adding a new freestall barn noting "the law is explicit that large projects must not be broken up into smaller units in order to avoid environmental review." *Id.* Finally, the court held that the MPCA "by deferring issues to later permitting and monitoring decisions, the Commissioner abandoned his duty to require an EIS where there exists a 'potential for significant environmental effects.'" *Id.*

Gustavus Aldophus College v. Minnesota Pollution Control Agency, No. C9-98-100080 (Fifth Judicial District, January 12, 2000). The case involves a challenge to a negative declaration for a new dairy feeding operation near St. Peter. The court found that the MPCA considered the type, extent, and reversibility of environmental effects associated with the proposed feedlot. It also noted any residual issues can be mitigated through government permitting. As a result, the court upheld the MPCA's decision.

Anderson v. Winona County Board of Commissioners, Unpublished Opinion No. C2-00-537 (Minn. App., December 5, 2000). The Court of Appeals upheld Winona County's denial of a conditional use permit for a feedlot designed to house 2,000 finishing hogs. Winona County denied the permit citing water quality, air quality, road use and property value concerns. Anderson had argued that the Winona County comprehensive plan allowed regulation of a feedlot to prevent water quality problems but not the denial of a permit. However, the court noted that the farm was in an agriculture/*natural resources* district and that the comprehensive plan states "the geology in some portions of the agricultural protection area consists of Karst geology...which makes the ground very susceptible to pollution. Thus, intense agricultural uses such as feedlots or solid waste disposal sites should be carefully regulated or *prohibited entirely* in these areas." (Emphasis supplied by the court.) In part because of the Karst issue, the court held that there was a reasonable basis in the record for the County's concerns about water quality issues. The court also found that testimony that nearby residents suffered from asthma was sufficient to support the County's findings that the proposed feedlot would have

negative air quality impacts. The court did note that vague or generalized concerns about health impacts are not sufficient to deny a conditional use permit but found that the testimony in this case showed health concerns that were neither vague or generalized. Based on these water and air quality concerns the court concluded that Winona County had “ample evidence” in the record to support its findings that the proposed feedlot presented legitimate public health concerns.

Statutory Changes

The legislature has actively intervened on feedlot issues, especially in the 2000 session placing new requirements on manure applicators and limiting the authority of the MPCA.

1999 Session--1999 Minn. Stat. Chapter 231, section 147

- Requires the MPCA, prior to issuing an administrative penalty order for a feedlot to offer to meet with the feedlot operator to discuss the violation, and to allow the operator to present information that may affect the decision to issue an APO. The section also allows the MPCA to forgive administrative penalties for serious violations if the abated penalty is used for environmental improvements on the farm and if the commissioner determines that the violation has been corrected or appropriate steps taken to correct the violation.

2000 Session—conference report on H.F. 3692

- Requires the Commissioner of Agriculture, working with University of Minnesota Extension, to develop manure applicator training
- Beginning in January 2005, except for a commercial animal waste technician, only a certified private manure applicator may apply animal waste from a feedlot that has a capacity of 300 or more animal units and does not have an updated manure management plan
- Redefines animal units to increase the number of animals necessary to constitute an animal unit for several species
- Provides that a feedlot permit does not become required solely because of a change in the ownership of buildings, grounds, or feedlot
- Prohibits the MPCA from imposing permit conditions that are not required by law (statute or rule) unless the permit applicant agrees to the condition
- Prohibits fines for a discharge from land applied manure or from a manure stockpile that is managed according to MPCA rule
- Except in the case of an immediate public health threat, prohibits the MPCA from ordering a feedlot to spend more than \$3,000 to upgrade a facility with less than 300 animal units unless 75% cost-share funding is available, or to spend more than \$10,000 to upgrade a facility between 300 and 500 animal units unless 75% cost-share, or \$50,000 in cost-share money is available
- Requires that after general permit criteria for NPDES permits have been developed, individual NPDES permits that no longer meet the criteria for individual NPDES permits must be transferred to general permits
- Exempts livestock production facilities from state ambient air quality standards while manure is being removed and for seven days after manure is removed

- Provides that state air quality standards are applicable at the property boundary of a farm unless the operator has obtained an air quality easement on adjoining property. Air quality easements may not exceed five years
- Prohibits the MPCA from requiring air emission monitoring for any type of livestock system that has not had a hydrogen sulfide emission violation
- Provides that 75% of a penalty in an administrative penalty order for a serious feedlot violation must be forgiven if the amount forgiven is used for approved measures to mitigate the violation
- Extends the moratorium on open-air clay, earthen or flexible membrane lined swine waste lagoons until 6 months after the completion of the GEIS
- Mandates several changes to the draft MPCA feedlot rules
- Prohibits the MPCA from requiring upgrades on feedlots with less than 100 animal units until the Department of Agriculture cost-share study is completed unless 75% cost share is available or a immediate public health threat exists.

Governor's 2002-2003 Budget

The 2002-2003 budget provides significant new funding for MPCA and county feedlot staff and for cost share programs at a time when budgets for most programs are flat or decreasing.

The Governor's budget for the MPCA provides:

- \$1.45 million for the biennium from the General Fund for additional MPCA permit staff,
- For the transfer of \$1.4 million for the biennium from Clean Water Partnership Grants to the Board of Water and Soil Resources for cost-share assistance to livestock producers for feedlot upgrades required under the revised feedlot rules,
- For the transfer of \$1.07 million for the biennium from Clean Water Partnership Grants to the Board of Water and Soil Resources for county feedlot grants to delegated counties for permitting responsibilities.

The rationale and outcomes from the Governor's MPCA budget are included as Attachment 1.

The Governor's budget for the Board of Water and Soil Resources provides \$280,000 for the biennium for feedlot engineering assistance. The rationale and outcomes for this budget are included in Attachment 2.

The Governor's budget for the Department of Agriculture includes \$350,000 for the biennium from the dairy diagnostic program for the "Feedlot Information and Assessment Team" to assist feedlot operators understand and make informed decisions regarding the revised MPCA feedlot rules. It also includes \$750,000 in low-interest loans to eligible livestock producers for environmental improvements required under the new feedlot rules. The rationale and outcomes for these budget items are included in Attachment 3.

Proposed U.S. Environmental Protection Agency regulations for animal feeding operations

U.S. EPA has increasingly focused on feedlot issues over the last five years. The proposed new Federal rules for confined animal feeding operations continues this policy direction.

In December 2000 the U.S. Environmental Protection Agency proposed significant new regulations that would apply to all feedlots requiring a National Pollutant Discharge Elimination System (NPDES) permit. The proposal includes several important new provisions.

- EPA has proposed two options for defining concentrated animal feeding operations (CAFOs). Option one would lower the current 1,000 animal unit threshold (using the EPA definition of animal units which differs from the definitions adopted by the Minnesota Legislature) to 500 animal units but designate smaller animal feeding operations as CAFOs only by designation of a permitting authority. The second option is to retain the current 1,000 animal unit threshold. However, feedlots over 300 animal units must certify that they do not discharge pollutants through manmade facilities or discharge pollutants into waterways or allow confined animals to come into contact with waterways (the conditions for becoming a CAFO).
- The proposal would add dry manure handling poultry facilities and stand-alone immature swine and heifer operations to the NPDES program.
- It would add the land application area in the CAFO definition.
- Each CAFO must prepare and implement a site-specific nutrient management plan, that is prepared or approved by a certified planner, that identifies the nutrients generated at the facility, determines the amount of nutrients needed by the planned crop rotation, and establishes agronomic rates of manure application.
- The proposal would eliminate the 25-year, 24 hour storm permit exemption.
- Manure recipients must certify that they are land applying at agronomic rates or, in the alternative, the CAFO must maintain records of the manure transferred to other land owners.
- Processors that exercise substantial control over contract growers must be co-permittees.
- A CAFO must maintain its permit until the facility is properly closed including proper closure of manure storage.
- Permitting authorities would be required to publish quarterly a list of CAFOs covered under a general permit.
- A permittee must submit a notice that they have developed or amended a permit nutrient plan.
- Apply the NPDES effluent guidelines to all CAFOs including CAFOs with 1,000 animal units.
- All beef and dairy CAFOs and new swine, poultry and veal CAFOs must perform an assessment to determine whether a hydrologic link exists from groundwater beneath the feedlot to surface water.

- Adopting a zero discharge requirement with no overflow allowance for swine, veal and poultry CAFOs.
- Requiring routine inspections of the production area to ensure that wastewater and manure handling and storage are functioning properly.
- Mandating that CAFO operators determine the nutrient needs of their crops based on realistic yields, sample soil to determine nutrient content, and use phosphorus indices to determine nutrient application rates.
- Establishes setback requirements that would prohibit applying manure and wastewater within 100 feet of surface water.

The Proposed Federal Conservation Security Act

An interesting new approach to cost-share funding is found in the "Conservation Security Act," a proposal for amending federal farm policy. While the Act would apply to all types of agriculture, many of the ideas would be applicable to animal agriculture. The Act provides a three-tier approach to conservation payments for farmers:

Tier I covers a wide range of basic land management and vegetative conservation practices. Within tier one, the more practices chosen with significant positive natural resource and environmental benefits, the higher the payment.

Tier II incorporates tier one practices, but adds practices that generally require a change in land use that, while important to conservation, may result in less income to the farmer. These include diversified, resource-conserving crop rotations, conversions to grass-based farming, buffer practices to enhance soil and water quality, cover cropping, and restoration of wetlands, native prairie, and wildlife habitat. Utilization of these practices will provide compensation at a higher level, in recognition both of the additional conservation value and the economic value foregone.

Tier III participants would include practices from the first two tiers and incorporate a whole farm, total resource plan for maximum sustainability [linking the voluntary idea of Whole Farm Planning discussed earlier with cost-share dollars to encourage wider use of the concept and also linking economic and value-based behavioral motivators]. These participants would be eligible for the largest program benefits in return for developing and implementing whole farm plans that account for all pertinent natural resource and environmental impacts.

Payments under the proposed legislation would be up to \$20,000 for Tier I, up to \$35,000 for Tier II, and up to \$50,000 for Tier III activities. Minnesota sponsors of this concept have included Representatives Gutknecht, Peterson and Oberstar. It is unclear whether the concepts in the Conservation Security Act will reemerge in this year's debate over reauthorizing the Federal Farm Bill.

Policy Implications

Over the last few years, six key trends related to the role of government have affected Minnesota's animal feeding operations. First, a wide range of the issues surrounding feedlots is receiving extensive review through the Generic Environmental Impact Statement. The Legislature directed the preparation of the GEIS which examines a number of critical issues and is being prepared in consultation with an advisory

committee representing a range of interests and positions on the animal agriculture issue. Second, the state rules regarding feedlots have undergone extensive changes. The MPCA recently adopted new rules that streamline the permitting process while bringing more feedlot facilities under regulatory control. Third, the Legislature has made a number of specific changes to restrict the permitting and environmental review programs for feedlots. Fourth, counties have become more involved in feedlot permitting and oversight. Fifth, citizen complaints have become the major driver for feedlot inspections, a fact that seems to have increased the level of local conflict over feedlots in several instances. And finally, the U. S. Environmental Protection Agency has taken an increasingly active role on issues related to concentrated animal feeding operations.

Preparation of the GEIS for animal agriculture is a demonstration of the importance that this issue has had for the state in recent years. Unfortunately, it also demonstrates how unprepared the state was to address this relatively new industry and the lack of information available on a national or even international basis. By undertaking such a major study and using the Citizens Advisory Committee to review and develop the document, Minnesota is working to address this complex issue in an informed and evenhanded way.

At the same time Minnesota is proceeding with this complex study, the state has moved ahead to make changes in the way it deals with feedlots. These actions have taken place without the benefit of the findings from the GEIS. As a result, if the state decides to implement some of the recommendations evolving from the GEIS, it may be necessary to rescind or modify some of these recent legislative or administrative changes if they are not compatible with the recommended actions.

The new MPCA rules provide for more streamlined permitting. This change allows more resources to be directed towards inspections, assistance and enforcement but involves some tradeoffs: less flexibility to adapt to conditions at individual facilities and reduced opportunity for public involvement. This may make it difficult for permit staff to respond to the differences of permitting individual facilities and may serve to discourage innovation and use of new technologies because the innovations are not addressed by the rules. The new rules also limit the opportunities for public involvement, which may increase the frustration of citizens and do little to reduce controversy. As a result, the state will need to look at new ways of encouraging the use of new technology and alternative ways of providing opportunities for public involvement.

Over the last few years the Minnesota Legislature has changed the permitting and environmental review requirements for feedlots. These changes have occurred in a piecemeal fashion with no apparent overall strategy for the type of feedlot management program needed in the state. These changes have restricted MPCA's authority, may jeopardize MPCA's federal NPDES permitting status, reduced the ability of the Agency to gather valuable information about air pollution impacts, and limited certain types of environmental review.

Although some of these changes were made to reduce governmental requirements for feedlot operators and improve the business climate, this may not have the intended effect. One of the studies reviewed for this TWP provides some important insight into the issue of government regulation and industry growth. Mo and Abdalla investigated the relationship between the stringency of state environmental regulations and swine industry expansion over the 1988-1995 period. Thirteen states were studied, including Minnesota. Despite the "conventional wisdom" that assumes a linkage between state environmental policies and business location decisions, most empirical studies to date have found only weak and insignificant effects for manufacturing as a whole.

The Mo and Abdalla study found that overall the stringency of environmental regulation did not appear to impact hog inventory growth. While the states' laws "on paper" did not differ significantly, the authors found that two variables in each state's enforcement did have an influence. The amount of fines per violation had the expected negative effect but, significantly, the amount of staff devoted to animal waste management had an unexpected, but strongly positive relationship to hog inventory growth.

Given these findings, the recent regulatory changes that reduced the stringency of the regulations governing feedlots may not be advantageous to the growth of animal agriculture. On the other hand, increasing the number of regulatory staff administering the regulatory programs may be beneficial to growth of the industry. The Governor's current budget proposal includes funds for additional regulatory staff.

The fourth trend has been increased county responsibility for feedlot permitting and oversight. For counties to be successful in this endeavor, they need adequate staffing and training, especially in light of the rather sophisticated priority setting, coordination and compliance management system approaches suggested in this TWP. MPCA and other state agencies will need to work closely with counties to ensure that counties have the resources necessary to do the job. And MPCA should conduct periodic constructive audits of county programs to help the counties build stronger programs.

The fifth trend is the increasing reliance on citizen complaints to "police" feedlots. The regulatory system currently relies too heavily on citizen participation and too little on the expertise of informed government judgement and expertise. This is true for environmental review and for permitting but is particularly evident in enforcement. Neither the MPCA nor the counties that were studied for this TWP have systems in place to periodically inspect feedlots to ensure compliance with permitting requirements. Inspections tend to be triggered by one of two events: application for a permit or a complaint from a neighbor (and many permits are issued which do not involve an inspection). This problem of the lack of inspection and reliance on citizen complaints was also noted in the Legislative Auditor's report on feedlots in January 1999. The Governor's budget proposal to increase regulatory staff may help to alleviate this problem but additional actions may be necessary to improve inspection abilities. Of course, as we have suggested, inspections should be only one part of a comprehensive compliance management system that includes both regulatory and non-regulatory tools to produce better environmental results.

Finally, the U.S. Environmental Protection Agency has been increasingly active on issues related to animal feeding operations. This may help eliminate some of the concern that a few states will capture business from Minnesota by attracting animal feeding operations through lax regulations. On the other hand, as we have suggested earlier, it may threaten Minnesota's control over its own feedlot program because some of the recent state legislation appears to conflict with federal regulations. Minnesota should carefully assess its program in light of the more assertive federal presence in this area.

Attachment 1

RATIONALE:

PCA rules for feedlots were revised effective 10-23-2000. The revised rule includes a new permitting structure, including elimination of some permitting requirements for smaller farms; more clear technical standards for feedlots; and an expansion of the role of delegated counties in permitting. This budget initiative will allow effective implementation of the revised rule.

A rigid permitting system for all facilities has been replaced with a self-registration requirement for most small farmers, and permitting requirements for mid-size farmers have been greatly reduced. Requirements for large facilities have been clarified, and increasing regulatory emphasis has been shifted to this higher impact group. This shift requires increased field presence by PCA staff and regulatory partners to make it work effectively. For this reason, the PCA is requesting funds for nine additional regulatory assistance staff at PCA and for an increase in funding for county-level regulatory programs. PCA staff will also assist county staff in understanding and implementing the technical requirements of the new rule, and maintaining local accountability for the money that is passed through. PCA is responsible for permitting all facilities with more than 1,000 animal units statewide, and for permitting all size operations in non-delegated counties. PCA anticipates greater workload in this area as facilities make changes required by the revised rule. This increased volume will also impact county programs.

Legislation passed in 2000 requires the PCA to process feedlot permits within 60 days. If the agency is unable to complete appropriate reviews within 60 days due to lack of resources, the permits will be automatically approved, and the potential is greater that significant environmental impact may occur. The alternative to increased staffing is to keep field staff in the office more so they can assure that the 60-day turnaround can be met. This will impede effective implementation of the new rules. Rather than seeking the entire number of staff needed to meet the 60-day turnaround 100% of the time, the Governor is recommending a total of nine staff to adequately meet the program deadline most of the time. In addition to increased staffing, the PCA recommends a modification of the 60-day time frame so it is clear that the provisions of M.S. 15.992 apply to feedlot permitting, rather than M.S. 15.99 (refer to PCA report, "Report to Legislature on the Minnesota Pollution Control Agency's Ability to Meet 60-Day Issuance Deadline for Feedlot

Permits"), and that the deadline for imposition of this provision move back from 10-1-01, to 10-1-03.

The PCA has historically provided some funds for feedlot improvement through the Clean Water Partnership (CWP). The CWP program has previously allocated between 2.5 – 3.5% of the grant funds for Best Management Practices at feedlots. This budget proposal significantly increases the funding that would go to farmers for feedlot improvements through a reallocation of \$700,000 per year in CWP funds to BWSR for cost share. The money for farmer cost share would be available only for feedlots between 300-500 animal units identified as needing to upgrade to meet state rules.

The PCA cannot require upgrade of feedlots of less than 500 animal units unless cost share is available to the farmer for at least 75% of the cost. Reallocation of money to fund the cost-share program is necessary so farmers can make the needed changes to reduce environmental risks by eliminating runoff from feedlots and upgrading leaky manure lagoons to protect groundwater. The focus will be on feedlots between 300-500 animal units in watersheds where feedlots pose the greatest environmental risks. The number of facilities needing to make improvements is an estimate based on the number of feedlots in this size range and a projected rate of compliance. Additional assistance staff will be needed at the county level to assist farmers in making these changes. The level of costs as proposed reflects a historic average and includes an average of 50% cost share, 25% loans, and 25% producer contribution. Therefore, the statutory language in M.S. 116.07, section 7, subd. 1 and 2 regarding farmer cost share needs to be amended to clarify that upgrades may be required if cost share funding is available for "up to" 75% of the cost.

FINANCING:

	Dollars in Thousands	
	FY 2002	FY 2003
Feedlot staffing to implement program in light of legislative mandate of 60 days for permitting (9 FTE)	\$725	\$725
Funds to be transferred to BWSR for county grants for feedlot programs	535	535
Funds to be transferred to BWSR for cost share for feedlots in priority watershed areas	700	700
Total	\$1,960	\$1,960

In addition, the PCA Environmental Tax Reform proposal will eliminate water quality permitting fees for farmers, making available an additional \$207,000 in FY 2002 and \$192,000 in FY 2003 which farmers may choose to apply to environmental improvements rather than paying permits fees.

OUTCOMES:

Environmental impacts from animal agriculture (pollutant contribution of fecal coliform and nutrients) will be reduced by effective administration of the new feedlot program. Improvements will be measured and documented through monitoring associated with TMDLs. Increased staffing of county and PCA programs will allow: an increased regulatory focus on higher impact feedlots, an increased role of delegated counties in feedlot regulation, and an increased PCA and delegated county field presence. Permit turnaround times will improve, and permit conditions will be more appropriate to facilities because permit writers and inspectors are able to visit many more sites. This will be a benefit to farmers. State funding will enable smaller farmers with between 300-500 animal units to make needed changes to their farms. This likely would not be economically feasible without state cost share funds. Assistance will be available to farmers through regional PCA staff and local officials, including county feedlot officers and Soil and Water Conservation District staff. The PCA recognizes that the waters of the state may remain impaired from other agricultural and urban sources of pollutants that otherwise would have received CWP funding to mitigate.

Attachment 2

BUDGET CHANGE ITEM (47310)

Budget Activity: GRANTS
Program: WATER & SOIL RESRCS BD
Agency: WATER & SOIL RESOURCES BOARD

Item Title: FEEDLOT NON-POINT ENGINEERING ASST

	2002-03 Biennium		2004-05 Biennium	
	FY 2002	FY 2003	FY 2004	FY 2005
Expenditures: (\$000s)				
General Fund				
-State Operations	\$140	\$140	\$140	\$140
Revenues: (\$000s)				
General Fund	\$-0-	\$-0-	\$-0-	\$-0-

Statutory Change? Yes _____ No X

If yes, statute(s) affected:

_____ New Activity X Supplemental Funding _____ Reallocation

GOVERNOR'S RECOMMENDATION:

The Governor recommends \$140 thousand each year to provide additional engineering assistance to help farmers complete environmental improvements in their feedlots and provide more effective customer service from regulatory agencies.

This budget request is part of a joint project between the Pollution Control Agency, the Minnesota Department of Agriculture, and BWSR. Details of each agency's change request can be seen in their respective budget pages.

RATIONALE:

The non-point engineering assistance program enables soil and water conservation districts (SWCD) to provide teams of engineers and technicians who assist with small feedlot pollution abatement. This support service is provided to producers for the activity cost-share program and the agricultural best management practices loan program administered by the Minnesota Department of Agriculture. With the increase in activity as a result of the changes in statute and rule for feedlots, manure management and pollution abatement, there will be an increased need for the technical support provided by the non-point engineering assistance program to landowners with the engineering review for their cost-share appliances and loan program applications.

As with other initiatives relating to feedlot water quality management, this is an important area for improving the competitive position of rural Minnesota. In addition, the public/private partnership opportunity presents a unique situation in which the state and local units of government (LGU) are able to enhance best management practices to protect ground and surface water quality.

FINANCING:

Funds from this request will be used for additional engineers and technicians throughout the state. These new local level staff will work with 130 producers to plan and design feedlot upgrades and expansions.

In addition to this request, the agency is reallocating \$613 thousand each year from it's existing cost-share program to feedlot water quality management. \$500 thousand will be used for increased feedlot cost share, and \$113 thousand will go for non-point feedlot engineering assistance.

If the PCA's feedlot initiative is funded at the requested level, it will transfer \$1.235 million each year to the agency from the Clean Water Partnership funds. These funds will be used as follows: \$700 thousand for cost share over and above BWSR's existing funding levels, and \$535 thousand for county permit staffing.

OUTCOMES:

The additional funding for non-point engineering technical assistance would enable the state to move ahead in achieving the surface and ground water protection objectives of the new state feedlot rules.

The program is one component of the ten-year strategy to accomplish feedlot pollution abatement and advance the goals of cleaner lakes and streams, protection of groundwater resources, and a stronger, environmentally safe livestock industry in Minnesota.

Attachment 3

BUDGET CHANGE ITEM (48630)

Budget Activity: AGRI RESOURCES MANAGEMENT
Program: AG MARKET & DEVELOPMENT SERVIC
Agency: AGRICULTURE DEPT

Item Title: FEEDLOT INFO & ASSESSMENT TEAM (FIAT)

	2002-03 Biennium		2004-05 Biennium	
	FY 2002	FY 2003	FY 2004	FY 2005
Expenditures: (\$000s)				
General Fund				
-State Operations	\$-0-	\$-0-	\$-0-	\$-0-
-Grants	\$175	\$175	\$175	\$175
Revenues: (\$000s)				
General Fund	\$-0-	\$-0-	\$-0-	\$-0-

Statutory Change? Yes No

If yes, statute(s) affected: M.S. 17.03, Subd. 1 and M.S. 17.117

New Activity Supplemental Funding Reallocation

GOVERNOR'S RECOMMENDATION:

The Governor recommends a reallocation of \$175,000 each year from the dairy diagnostic program (in the Protection Services Program) to assist feedlot operators understand and make informed decisions regarding the revised feedlot rules.

This budget request is part of a multi-agency feedlot initiative involving the Pollution Control Agency, the Board of Water and Soil Resources, and the MDA. The multi-agency initiative will address the needs of farmers for making environmental improvements in their feedlots and provide more effective customer service to feedlot owners from regulatory agencies. Details of each agency's change request can be seen in their respective budgets.

RATIONALE:

The department requests reallocating funds to initiate a pilot project (Feedlot Information and Assessment Teams) to help producers and their lenders make informed management decisions regarding individual operations and thereby encourage producers to continue in the industry as well as comply with the 7020 feedlot rule revisions.

The livestock industry in Minnesota generates over \$9 billion a year in economic activity and employs about 153,000 persons in production, processing and supply services. This request grows out of the need to facilitate producer decision making within the context of multiple agencies, advisors and sources of help; uncertainty among producers as to what the rules require and their potential cost of compliance; and prevent unnecessary exits from the industry due to confusion, frustration or uncertainty. The proposal will assist producers answer the following questions:

- What actions do I need to take to comply with the revised rules?
- What problems do I have to address to come into compliance?
- What are my alternatives, and what is the cost of each alternative?
- Can I generate the cash flow to pay for the "fix" and remain economically viable?
- What financial assistance is available to remedy the problem?

This proposal is part of an interagency package responding to a study mandated by the 2000 legislature regarding the financial needs of producers affected by the updated feedlot rules. An Interagency Study Team drew the following conclusions based upon available data:

- The state has approximately 38,468 feedlots with 24,300 required to register.
- Of the 24,300, about 18,000 feedlots will remain in business in 2010.
- About 700 feedlots would require some compliance work annually, with 45% minor and 55% major upgrades.

Total cost for structural improvements under the rules is estimated at \$165 million. Current state and federal cost share provide about \$4.9 million and low interest state loans provide about \$3.2 million per year. Historically, state provided assistance has helped about 300 feedlots upgrade each year. However, given the different sources of as well as ambiguity and lack of precision in the data, and general uncertainty in the industry, the Interagency Team concluded that a targeted approach should be taken to assist feedlots with between 300 to 500 Animal Units during the FY 2002-03 biennium. This category was selected because those with less than 300 Animal Units generally will have a longer period of time during which to comply, and those between 300 to 500 have the greatest level of economic uncertainty at this time. Current levels of financial assistance would continue to be available to other operators. The Interagency Team will reconvene during FY 2003, following completion of the registration process, to review the current estimates.

BUDGET CHANGE ITEM (48630) (Continued)

Budget Activity: AGRI RESOURCES MANAGEMENT
Program: AG MARKET & DEVELOPMENT SERVIC
Agency: AGRICULTURE DEPT

Item Title: FEEDLOT INFO & ASSESSMENT TEAM (FIAT)

FINANCING:

- Funding for this program is from internal reallocation of dairy diagnostic grants. The expenditures will be for grants through local organizations to teams of professionals to see to it that "one-stop shopping" assistance is available to producers.
- Clientele served are:
 - Minnesota Livestock Producers
 - Minnesota Citizens
 - Local Governments
 - Minnesota Lenders

OUTCOMES:

in support of the Governor's *Big Plan* and the agency's Strategic Plan, this budget change item supports the following:

- Governor's *Big Plan*
 - Minnesota, World Competitor
 - ◆ Trade is a major component of the Governor's vision. This item will help maintain the production of products for trade.
 - Agriculture, Competitive Anywhere in the World
 - ◆ This item levels the playing field helping farmers with environmental regulations, thereby making them less burdensome.
- Agency's Practical Vision
 - Effective internal and external two-way communication.
 - ◆ Facilitate Business Decisions – On-farm assessments will help farmers decide whether to remain in the livestock business, how to upgrade in the most cost-effective manner, and how to use available assistance.
 - Assume a leadership role in environmental policy and program development.
 - ◆ Protecting Water Quality – The project will assist targeted producers bring operations into compliance while protecting water quality and maximizing state and private investment.
 - Services and programs that are relevant to all of our customer requirements. This proposal responds to stakeholder comments that the department "help producers and processors stay in compliance with

rules and regulations" and "...balance environmental protection with agricultural promotion."

We anticipate these outcomes from this proposal:

- A facilitation of the complicated decision-making process producers go through involving a variety of resource persons
- State assistance directed to producers who intend or have the capacity to continue profitably in the livestock business.
- Progress toward rule compliance and water quality protection accelerated.

BUDGET CHANGE ITEM (60787)

Budget Activity: AGRI RESOURCES MANAGEMENT
Program: AG MARKET & DEVELOPMENT SERVICE
Agency: AGRICULTURE DEPT

Item Title: FEEDLOT LOANS-AG BMP

	2002-03 Biennium		2004-05 Biennium	
	FY 2002	FY 2003	FY 2004	FY 2005
Expenditures: (\$000s)				
General Fund				
-State Operations	\$350	\$350	\$350	\$350
-Grants	\$-0-	\$-0-	\$-0-	\$-0-
Revenues: (\$000s)				
General Fund	\$-0-	\$-0-	\$-0-	\$-0-

Statutory Change? Yes No

If yes, statute(s) affected: M.S. 17.03, Subd. 1 and M.S. 17.117

New Activity Supplemental Funding Reallocation

GOVERNOR'S RECOMMENDATION:

The Governor recommends a General Fund appropriation of \$350,000 in FY 2002 and \$350,000 in FY 2003 for low-interest loans to eligible livestock producers for environmental improvements required under the new feedlot rules.

This budget request is part of a joint proposal between the Pollution Control Agency, the Board of Water and Soil Resources, and the MDA that will address the needs of farmers for making environmental improvements in their feedlots and provide more effective customer service to feedlot owners from regulatory agencies. Details of each agency's change request can be seen in their respective budgets.

RATIONALE:

This request will provide low interest loans to livestock producers who are required to make environmental improvements to their feedlots as a result of the 7020 feedlot rule revisions. The initiative targets feedlots having between 300 to 500 Animal Units.

The livestock industry in Minnesota generates over \$9 billion a year in economic activity and employs about 153,000 persons in production,

processing and supply services. This request grows out of the concern that the financial cost of compliance, in combination with current prices and uncertainties, may cause many producers to exit the industry, thereby weakening this economic sector which is vital to rural Minnesota.

The initiative is part of an Interagency package responding to the findings of a study mandated by the 2000 legislature regarding the financial needs of producers affected by the rule revisions. The study, conducted by an Interagency Team from the Board of Water and Soil Resources, Pollution Control Agency, Department of Finance, and MDA drew the following conclusions from data available at this time:

- Minnesota has 38,468 feedlots with about 24,300 required to register.
- Of the 24,300, 18,000 will remain in business in 2010.
- About 40% of the 18,000 require improvements with 45% of these minor and 55% major upgrades.
- An estimated 700 feedlots would require some compliance work annually.

Total cost for structural improvements under the rules is estimated at \$165 million. Current state and federal cost share provide about \$4.9 million and low interest state loans provide about another \$3.2 million per year. Historically, this assistance has helped about 300 feedlots upgrade each year. However, given the different sources of as well as ambiguity and lack of precision in the data, and uncertainty in the industry, a more targeted approach is being taken to provide financial assistance to feedlots with between 300 to 500 Animal Units. This category was selected because feedlots less than 300 Animal Units generally have a longer period of time in which to comply, and the 300 to 500 category has a higher level of economic uncertainty at this time. For these reasons, the Interagency Team decided to target additional funding toward this category during the FY 2002-03 biennium. Current levels of financial assistance will continue to be available to other feedlots. The Team intends to meet during FY 2003 to revise the current estimates once the registration process is completed (1-1-02).

FINANCING:

- Funding for this program is from the General Fund for low interest loans to qualifying producers.
- Clientele served are:
 - Minnesota Livestock Producers
 - Minnesota Citizens
 - Local Governments
 - Minnesota Lenders

Budget Activity: AGRI RESOURCES MANAGEMENT
Program: AG MARKET & DEVELOPMENT SERVICE
Agency: AGRICULTURE DEPT
Item Title: FEEDLOT LOANS-AG BMP

OUTCOMES:

This request supports the Governor's *Big Plan* and the agency's Strategic Plan:

- Governor's *Big Plan*
 - Minnesota, World Competitor
 - ◆ Trade is a major component. This item helps maintain the production of products for trade.
 - Agriculture, Competitive Anywhere in the World
 - ◆ This item levels the playing field for farmers by helping finance improvements to come into compliance with environmental regulations, thereby making the regulations less burdensome.
- Agency's Practical Vision
 - Assume a leadership role in environmental policy and program development.
 - ◆ Protecting Water Quality – The project will assist producers come into compliance in a manner that protects water quality while maximizing state and private investment.
 - ◆ Relevant Services – This proposal responds to stakeholder comments that the department “help producers and processors stay in compliance with the rules and regulations” and “...balance environmental protection with agricultural promotion.”

We anticipate these outcomes from this proposal:

- Impacting unnecessary exits by livestock producers.
- State assistance to help producers continue in the livestock business.
- An acceleration of progress toward compliance with the rules.

Chapter 8

FUTURE USES OF THE GEIS

Alternative Form of Review

One of the requirements for a generic environmental impact statement is that it contain, “if appropriate, a description of an alternative form of review that is proposed to be used to review specific projects whose impacts have been considered in the generic EIS. An alternative review proposal contained in a generic EIS must be approved by the EQB under part 4410.3600 prior to use. (Minn. R. 4410.3800, Subp.7.D.)

No EIS has been prepared for a feedlot in Minnesota. There is no mandatory category for a feedlot EIS and, given the history of environmental review for feedlots, it is not likely that EISs will be a major form of environmental review in the future. However, as the animal agriculture industry continues to grow, a project-specific EIS for a feedlot may be warranted. Preparation of a project specific EIS for a feedlot proposal should remain an option for environmental review.

In our examination of the EAW process in Chapter 5, an alternative form of review, an “animal feedlot EAW” was recommended. A special “animal feedlot EAW” form already exists using a new EAW form designed specifically for feedlots. This form should continue to be used but two improvements should be made:

- Mitigative measures and alternatives. Question 12 of the new form asks for a summary of issues and discussion of alternatives and mitigative measures. This is a good starting point, but often alternatives and mitigation measures are identified during the EAW review process. The EAW should require that a negative declaration statement clearly state the issues that have come out in the process, and the alternatives and mitigation measures that can be used to address these issues.

The RGU can specifically state which alternatives or mitigation measures they intend to require for issues over which they have jurisdiction. However, the negative declaration should also list those issues that are outside the jurisdiction of the RGU. This would be particularly helpful for county boards who have to review a project that has had an EAW. If a negative declaration from the RGU gives the impression that everything is fine with the project, then county boards are put in a difficult position. By listing unresolved issues in the negative declaration, these issues can then be considered in the appropriate forum.

- Cumulative impacts. Question 11 of the new form addressed cumulative impacts. As discussed in Chapters 5 and 6, the state and other entities should develop a database of background information for air quality and water quality. This information would

be available to feedlot proposers to assess the cumulative impacts of a proposed construction or expansion. This database could be developed as part of the GEIS or as a separate project.

- The mandatory categories for EAW preparation would remain unchanged.

Need for Updating the GEIS

Massachusetts prepares four to five generic environmental reviews, or programmatic reviews, for a variety of state run or state permitted projects per year. Their rules require that the documents need to be reviewed within two years of completion to examine what activities have taken place and what the experience has been. From that review, a decision is made whether the GEIR needs an update. This time requirement is flexible and can be changed to fit particular situations.

The Minnesota forestry GEIS relied heavily on a theoretical model as the basis for making decisions on whether different timber harvesting scenarios were environmentally sustainable. The usefulness of this model diminishes as better and more current on-the-ground data is gathered about Minnesota's forests. In addition, some of the assumptions in the model are changing as forestry modeling techniques improve. As a result, in the forestry GEIS context it may be important to revisit the GEIS to run a more sophisticated model that takes into account better on-the-ground information.

The feedlot GEIS is not based so heavily on a modeling approach. Although modeling plays a role in some areas, especially air quality, it is not at the heart of the feedlot GEIS.

We strongly suggest that one agency be given ongoing responsibility for reviewing and updating the GEIS and that some advisory, stakeholder group (the CAC or some derivation of that group) be involved in these periodic reviews and updates. Formation of an ongoing agency-based Implementation Team, which includes county representatives, and that is advised by a multi-stakeholder group, may be more important than immediate plans for updating the GEIS.

This Implementation Team should ensure that the recommendations of the GEIS get appropriate attention. It should also help develop "spin off" efforts such as a sound research agenda that helps the state identify issues early and develop or integrate a series of area-wide studies that can help identify cumulative effect issues and assist permitting decisions. This Implementation Team, in consultation with the multi-stakeholder group, could also assess the need for any supplement to the GEIS at a milestone period, perhaps five years.

One of the "spin off" tasks for the Implementation Team is to use the GEIS as an on-going forum for an emerging issues research agenda. As discussed in Chapter 4, it is important for government to anticipate emerging issues related to animal feeding operations and be able to respond to concerns of both citizens and producers. Some of these issues may be identified in the GEIS. The preparers of the technical work papers have been asked to identify additional study needs. The CAC, in its review of the

technical work papers may also suggest study needs. In addition, there are likely to be new issues that emerge in the future, that weren't anticipated in the GEIS.

The second "spin off" task for the Implementation Team is to develop cumulative effect information. As discussed in Chapter 6, there is a need for usable "existing conditions" information. This region-specific or area-specific data provides information about the existing environment in a particular location. There are efforts underway to gather information about environmental conditions in Minnesota, particularly relating to water. Minnesota has been working for years to gather relevant data and to integrate the various water monitoring and management programs within the state. Some efforts are underway to also gather air quality data. Some information about environmentally sensitive areas, such as Karst, has also been developed. The information that is available should be integrated with the new feedlot registration program. This information could be used to identify the existing condition levels, or the "no build" alternative, for cumulative impact analysis and could be used in permitting.

Additional Work Tasks

The work tasks for this project ask that any additional work tasks that could be undertaken to more completely answer the Scoping Study Questions should be identified.

Four additional studies are recommended.

County Information Needs

Counties bear a significant amount of responsibility for managing feedlots. Delegated counties have permitting and enforcement responsibilities for most feedlot operations in their area. Non-delegated counties are responsible for reviewing building applications for new or expanding feedlots and, in some cases, issuing conditional use permits. The newly revised EAW rules designate counties as RGUs in certain cases.

In the course of our study we found a number of incidences where county representatives expressed frustration with the responsibilities they have to review and manage feedlots in their area or indicated some confusion as to what their responsibilities actually are.

We recommend that the CAC consider additional study to examine the information needs that the counties have to adequately carry out their responsibilities to review, permit and monitor feedlot operations. This study should discuss information needs with a variety of delegated and nondelegated counties, both feedlot and planning and zoning staffs, and county board members. It should also involve interviews with MPCA staff to determine what information sources are available to counties and what training is currently done for county personnel. The study should examine not only information needs but also any technology needs (such as field air monitoring equipment). The study would recommend any additional information that is needed, methods for conveying that information, and recommendations for training.

Estimated cost for the study: \$25,000

Evaluate Implementation of Chapter 4 Recommendations

Chapter 4 of the Role of Government TWP identifies some key concerns regarding the regulation of feedlots in Minnesota and recommends a number of improvements to the regulatory system. This additional study would examine these recommendations and evaluate how these improvements might be implemented. Several scenarios for timing and implementation of these changes would be developed. These scenarios would be discussed with a variety of state and county regulatory staff to refine concepts and test different approaches. Feedlot permitting programs in other states could also be examined to determine if similar approaches are used there. The study would result in a further focusing of the Chapter 4 recommendations and suggestions for implementation and phasing of the changes.

Cost: \$20,000

Investigate the Implications of Transferring the Feedlot Regulatory Program to the Department of Agriculture

This issue would be examined from several approaches. The Department of Agriculture's current role with feedlots, including regulatory, financial assistance and technical assistance, and how those responsibilities are currently fulfilled, would be examined. The study should also discuss the regulations that affect feedlots, describe which agencies have regulatory authority for which aspects of feedlot development and operation, and discuss how some or all programs could be transferred to the Department of Agriculture. Some other states could be contacted to determine how the government functions of regulation and assistance are divided among their state agencies and what problems or successes they may have had. The issue of fragmentation for regulatory programs, including fragmentation for types of business operations (such as feedlots) and fragmentation for resource protection (such as water protection divided among several agencies) should be reviewed. The study should provide an evaluation of the benefits and drawbacks of transferring all or some of the feedlot regulatory program to the Department of Agriculture.

Cost: \$25,000

Develop a Plan for Establishing a Cumulative Impact Information Database

As discussed in Chapters 4 and 6, the state along with other entities should establish a statewide database focused on air and water quality background information that can be used to assess the cumulative impacts of new or expanding feedlot operations. This would involve examining the existing monitoring and data gathering programs in the state that provide information about air and water quality existing conditions. The study should consider the adequacy of the sources, identify areas that do not have adequate data, and develop recommendations for a program to address those gaps.

Cost: \$45,000

Appendix A

SURVEY OF STATES RESULTS

This section contains the detailed information that was gathered regarding the programs in each state. The questions are grouped under five general headings:

- Permit programs
- Incentives
- Environmental review
- Public complaints
- General issues

As noted earlier, this information came from the responses to our surveys, plus additional information we were able to gather from direct interviews and other studies.

Permit Programs

1. What state environmental permits are required for feedlots?

Iowa

National Pollutant Discharge Elimination Systems (NPDES) and construction permits are required for open lots over 1000 animal units and construction permits for confinements over a specified weight limit.

Except for small feeding operations, a permit is required before construction of a facility can begin (including manure storage structures). Approval requires that the applicant (1) submit the application according to the Department of Natural Resources (DNR) rules and procedures, (2) pay an indemnity fee, (3) provide a manure management plan, and (4) submit an approvable design by a licensed engineer.

Iowa has established minimum standards for confinement. These standards require that all manure produced is retained and there is no direct discharge to a water of the state, a tile line that discharges to a water of the state, or into a publicly-owned lake, sinkhole, or agricultural drainage well. Farm operations must also remove and land apply all manure without causing surface or groundwater pollution.

New legislation extended the Iowa DNR authority to review more manure management plans. The manure management plans are required for all construction permits and some existing facilities.

Iowa is starting to address odors as an air issue for confined animal feeding operations/animal feeding operations (CAFO/AFOs). There was an odor program in the 1970s but it was discontinued. Iowa has full authority to develop a program but will wait until it receives a clear legislative mandate. The program will probably restart because of local concerns regarding toxic compounds from these operations.

Wisconsin

Wisconsin is currently issuing individual WPDES (Wisconsin Pollution Discharge Elimination System) permits for large concentrated animal feeding operations. This only affects those facilities that are operating with 1000 AU or more. Wisconsin has 91 permitted operations in the state (3 beef, 53 Dairy, 27 poultry, and 8 swine).

Like other industrial facilities, when an agricultural operation reaches the 1000 AU threshold, they are considered a point source discharge (vs. non-point source) and are regulated with a WPDES permit, which allows them to operate as long as they meet effluent limitations. At least 6 months, and ideally 1 year, prior to an operation expanding or building on a new site with the intention of being this size, the owners are required to complete and submit an application for a WPDES permit.

Agriculture operations are currently exempt from air quality regulations. One hog operation was investigated regarding odors based on health complaints from neighbors. Wisconsin is in the process of reviewing its programs for air quality as they pertain to LFO/CAFO/AFOs due to increases in corporate farm activity in Wisconsin and odor concerns regarding the Wisconsin Pollution Discharge Elimination Permit System permits.

The Wisconsin Department of Natural Resources' (WI DNR) Watershed Management program regulates nutrient run-off from LFO/CAFO/AFOs. The Notice of Discharge (NOD) program applies to LFO/CAFO/AFOs that are under 1000 animal units while the WPDES permitting program applies to operations of 1000 animal units or more.

NODs are issued to operations with a significant discharge to waters of the state, whether groundwater or surface water. NODs address manure management and are intended to eliminate need for a permit by eliminating the discharge or correcting the violation. Examples of significant discharge include overflow from manure storage facilities, over application of manure, direct runoff of manure, discharge of leachate, seepage from a manure storage facility, and manure storage facility with an unacceptable liner.

The farming operation must comply with a NOD. The farming operation can request cost-sharing technical assistance from the Department of Agriculture, Trade, and Consumer Protection (DATCP)

Failure to comply with a NOD may result in the need for a WPDES permit. WI DNR may issue a citation instead of a NOD, where a significant discharge results from intentional acts of mismanagement (e.g., direct pumping of stored manure in a stream).

WPDES permits include requirements for nutrient management, runoff control and proper manure storage. Unlike NODs, no state-cost sharing is provided. WPDES permits are reissued every five years.

WPDES permit applications must include final plans and specifications for proposed manure storage transfer and runoff control facilities, an evaluation of existing manure storage/transfer and runoff control structures, and a draft manure management plan.

Nebraska

When the state determines that a livestock waste control facility is required to control runoff from a livestock operation, a state construction permit is required prior to constructing the livestock waste control facility. Once constructed, the operation is issued a state operating permit. If the operation has the potential to discharge into waters of the state, a NPDES permit may be required.

The 1998 and amended 1999 Livestock Waste Management Act requires confined livestock operation of 300 AU or greater to register with the State to determine the need for a livestock waste control facility (if the operation did not hold a current operating permit or exemption letter). Also any permitted operation proposing to expand the operation or livestock waste control facility is required to contact the Department. The Department will make a determination what additional permits are necessary. The review of the plans and specifications determines whether a construction permit will be issued.

If the livestock operation is 300 AU and greater or if the livestock operation is less than 300 AU and determined to have a high potential for discharging to waters of the state, the operation is required to request an onsite inspection.

Missouri

State permits for CAFOs are required if the facility is larger than 1000 animal units or if the facility discharges to the waters of the state. Class 1A facilities, with 7000 animal units or larger, require a site-specific NPDES permit. Facilities with less than 7000 AU are eligible for general permits.

The Clean Air Commission (a citizen committee appointed by the governor with rule making authority) has recently approved rules governing odor at Class 1A facilities. These facilities will need to meet a 7:1 dilution rate at their property line. The rules take effect in January 2002 and Class 1A facilities are currently required to submit progress reports regarding their steps to come into compliance with these new standards.

North Carolina

In the summer of 1995, North Carolina experienced a devastating series of massive spills of hog waste. Environmentally sensitive estuarine rivers suffered record fish kills. The spills of 1995 occurred because heavy rains, an exploding livestock population and antiquated regulations combined to produce an environmental disaster. (Burns, 1996)

In the 1990s, hog production in North Carolina rose to become the state's top farming industry, displacing tobacco. North Carolina's growth is attributed not only to limited regulations but also to vertical integration of the industry, and the availability of land, labor, transportation and favorable climate. North Carolina currently has about 7.2

million people. The 10 million hogs in the state are estimated to produce waste at 4.5 times the waste of humans, or the equivalent of 45 million more humans (or roughly the population of California). Some recent estimates set an even higher number of hogs, around 17 million.

Prior to February 1, 1993, animal waste treatment systems were deemed permitted by the North Carolina Environmental Management Commission's rules as nondischarge facilities as long as they did not discharge to surface waters. Enforcement was on a complaint driven basis.

Changes to strengthen the state's regulation were made in 1993, 1995 and 1996. In 1997 the General Assembly ratified a comprehensive "Clean Water Responsibility" bill which, among other things, called for a moratorium on new and expanding swine facilities, allowed counties to adopt local zoning regulations for larger swine farms, required the development of a plan to phase out anaerobic swine lagoons and sprayfields, and directed the adoption of standards to control odors from hog operations.

The law requires a permit to construct and operate an animal waste management system for animal operations. Waste management systems must meet a system design requirement that prevents pollution to the water of the state, except "as may result because of rainfall from a storm event more severe than a 25-year, 24-hour storm." Animal waste management plans must meet detailed requirements and are required of all animal operations. Annual inspections of all animal operations by state authorities are mandated, and animal waste management plans are also required, including an operations review conducted by a technical specialist at least once each year. (Abdalla and Becker, 1998)

South Carolina

South Carolina has been regulating animal operations since the mid-1960s. The SC Pollution Control Act (PCA) defines "sewage" to include animal waste while the definition of "other waste" includes dead animals. The PCA requires a permit before a discharge to the environment (surface or ground water) may occur and it also requires a written permit before any new waste treatment or handling system at an animal operation may be built or operated.

South Carolina operated with guidance until recently because of farmer opposition to any feedlot rules. The Guidance manual required all commercial operators to have a permit and to prepare a manure management plan. In the 1970s the program operated mostly through voluntary compliance but the agency began to initiate enforcement actions in the 1980s and that approach continues today.

In 1995 IBP applied for a permit for a 50,000-head hog operation and Smithfield Farms proposed a large packing operation to handle North Carolina pigs. This caused a major uproar in South Carolina. Draft legislation, that originally was designed to prohibit counties from imposing tougher feedlot standards than the state, was redesigned into the 1996 Confined Swine Act. Part 100 of the regulation deals with swine and Part 200 deals

with all other animal feeding operations.

The SC Confined Swine Feeding Operation Act includes provisions for public notice requirements; consideration of cumulative impacts; lagoon design; and setbacks from property lines, water of the state, potable wells, etc. Provisions for regulation of odors and other “nuisances” are included in the law.

State permits are required for any facility where swine or other animal waste is produced, processed or disposed. The handling, storage, treatment and final disposal or utilization of swine waste from a new or expanding swine facility must be permitted. Existing producers who are required by DHEC to update their waste management plan due to problems must meet the permitting requirements.

South Carolina takes the position that it has no CAFOs since it does not allow any discharge from any facility. Although S.C. has agreed with EPA that if a facility illegally discharges, as part of the penalty the facility can be required to obtain a CAFO permit since it has discharged. S.C. also argues that its statute, which only excuses illegal discharges for act of God, is actually more stringent than the NPDES standard that allows some discharges as a result of chronic rain events.

Lagoons in S.C. must be designed to hold the facility wastes, average rainfall, a 25-year storm event plus a one foot freeboard for the entire period where the waste is not land applied. The operator must also have enough land to apply the entire waste production either owned or under contract. S.C. argues that this requirement meets the NPDES CAFO exception.

South Carolina has not been a large hog state. Maximum production has been about 1,000,000 per year and now is at about 300,000. In contrast, North Carolina produces between 10,000,000 and 17,000,000 hogs per year. As of February 1999, South Carolina had approximately 1,300 active facilities permitted under the state “no-discharge” permit program. Of these, there are about 500 poultry facilities, 200 turkey facilities, 360 swine facilities, 150 dairy and beef facilities, and 90 miscellaneous animal facilities.

California

In both California and Idaho, dairies constitute a large percent of the animal confinement facilities in each state.

Regional Water Quality Control Boards grant and enforce permits. The Regional Water Quality Boards function under the authority of the State Water Resources Control Board (a branch of California EPA). Their focus is more on surface water contamination, although considerable emphasis has been discussed for groundwater concerns, too.

There are two types of permits related to manure management. The first is the NPDES stormwater permit. The other permit required in California is a Waste Discharge Requirement. In actuality, most dairy operators are operating under a Waiver of Waste Discharge Requirement. This waives the operators’ monitoring and reporting

requirement to the Regional Water Quality Control Board. This waiver requires that the facility operate without adverse impact to the environment. The laws related to water quality must be followed with a waiver or an actual permit.

Dairy operations are more highly regulated than other types of animal feeding operations. For dairies, the key four areas for attention are: adequate storage capacity for liquid wastewater, uniform and efficient application of nutrients and irrigation water, proper tail water return system, and existence of a pollution prevention plan.

Idaho

Idaho has attracted several large dairy operations with up to 5000 or more cows in the last few years. The state also has several large beef cattle feeding operations with herds up to 500,000. Large hog feedlots are relatively new but a new 50,000 sow facility is about to go on line. There also have been proposals for some large poultry facilities.

Idaho is not an NPDES authorized state, so EPA Region X issues CAFO NPDES permits. However, as a result of proposals for siting large swine and poultry feedlots in the state, the legislature in 1999 authorized Idaho Department of Environmental Quality (IDEQ) to develop regulations for new swine and poultry operations involving more than 2,000 animal units. A negotiated rulemaking proceeding that involved environmental organizations has just been completed.

About four years ago when the large dairy operations began to expand, the Dairy Association asked the state government to develop a negotiated regulatory arrangement for dairy operations. The result was a dairy memorandum of understanding (MOU) signed by Idaho DEQ, Idaho Department of Agriculture (ISDA), EPA Region X and the Dairy Association. Environmental organizations were not involved in developing the MOU. Smaller producers were upset about the new regulatory approach (there had been little regulation of feedlots in Idaho prior to the MOU) and raised questions about the approach in the state legislature. Ultimately the legislature allowed the MOU to proceed.

Under the MOU, rules for dairy feedlot management and enforcement were developed. Dairy inspection and enforcement authority as well as lagoon plan and specification review was assigned to the Dairy Inspection Office of the Department of Agriculture.

The same parties are now negotiating a beef cattle MOU. Review and inspection authority under the MOU will be housed with the Animal Health Division of ISDA.

The state has also prepared proposed financial responsibility rules that cover operation and closure for swine and poultry operations involving more than 5,000 animal units. Only one such facility currently operates in the state.

2. Which state agency issues environmental permits?

Iowa

The Waste Water section of the Environmental Protection Division of the Department of Natural Resources.

Wisconsin

Wisconsin Department of Natural Resources has been delegated the authority by EPA to issue permits in the state of Wisconsin.

Nebraska

Nebraska Department of Environmental Quality.

Missouri

Missouri Department of Natural Resources.

North Carolina

Department of Environment and Natural Resources, Division of Water Quality

South Carolina

South Carolina Department of Health and Environmental Control

California

State Water Resources Control Board (and the Regional Water Resources Control Boards), California Integrated Waste Management Board, California Department of Food and Agriculture

Idaho

Idaho Department of Agriculture, Idaho Department of Environmental Quality.

3. Do local governments (county, watershed districts) have a role in environmental permitting?

Iowa

Currently they are only advised of new construction applications and are given a chance to comment on such applications.

An article in the Drake Journal of Agricultural Law points out that recent administrative and judicial decisions in Iowa provide mixed signals about counties' abilities to regulate confined livestock operations. An Iowa Supreme Court decision in 1996 (*Kuehl v. Cass*) held that a proposed hog confinement facility for 2000 hogs was exempt from county zoning regulations. Current Iowa law exempts land and farm buildings from county zoning authority. A 1997 decision by an Iowa district court validated three of four ordinances that required county approval for construction new livestock facilities,

regulated manure application, and required financial assurance for possible clean-up in case of abandonment. (Abdalla and Becker, 1998)

Wisconsin

County governments are involved on a zoning and ordinance level. Most of the 72 counties in Wisconsin have ordinances that allow them to control construction and conditional land use. Local control can be and sometimes is more restrictive than the statewide permits.

Local governing bodies are responsible for facility locating requirements. Local governmental units may enact regulations for livestock operations that exceed the performance standards, prohibitions, conservation practices and technical standards under state regulation only if the local governmental unit demonstrates that the regulations are necessary to achieve water quality standards.

Nebraska

A copy of an application for a construction and operating permit is sent to the County Clerk and the Natural Resources District (NRD) where the operation is located. The NRD has 20 days to provide comments on local site conditions that may be pertinent to the application. The NDEQ has 30 days to determine if the application is complete.

Missouri

Local governments have a role only if the concern regarding a facility extends to human health. Local government involvement is uncommon.

North Carolina

Under North Carolina law, county zoning regulations could not affect "bona fide" farms. A state law passed in 1991 specifically included livestock facilities within the definition of farms.

Following the massive manure spill in 1995, the state's regulatory programs were strengthened. In 1997 the North Carolina Legislature enacted a broad clean water bill that included stringent new provisions to address environmental and nuisance issues resulting from the state's booming hog industry. The bill removed the previous zoning exemption for farms and authorized county governments to regulate hog farms and other agricultural facilities if the size of the operation exceeds specified limits. (Abdalla and Becker, 1998)

South Carolina

S. C. has not delegated its authority to regulate agricultural facilities to the local level. However, local governments are responsible for land use and, therefore, can regulate the location of AFOs through zoning.

The 1996 comprehensive confined swine feeding operation law originated as an effort by the major state agricultural organizations to establish statewide uniform guidelines for animal waste management and to preempt counties from enacting laws in this area. The

effort proved unsuccessful, however, as local governments rallied to oppose limits on their authority. (Abdalla and Becker, 1998)

California

California enforcement of air quality and water quality standards is administered through regional agencies (Regional Water Quality Control Boards and Local Air Quality Management Districts). These local entities are not controlled by the state but the state has authority to veto decisions of the local entities. The Regional Water Quality Control Board issues NPDES permits in the project area.

Idaho

Idaho's land use planning laws provide the counties authority to establish parameters for permitting CAFO facilities. Several counties have a conditional use or a livestock confinement operation permit. There are a number of counties that have no requirements. Some counties have expressed concern that they might not be equipped with appropriate professional resources to adequately evaluate the possible impacts of livestock operations in certain areas of their counties.

In the 2000 session a new feedlot siting act was passed that allows counties to set up a siting panel that includes state officials and others to help establish appropriate conditions for conditional use permits. A memorandum of understanding was developed with several state entities to provide technical assistance to counties when siting CAFOs. So far one county has entered into a CAFO siting agreement and others are expected to join. The law also makes it quite clear that the Idaho DEQ is responsible for environmental issues and that counties are responsible for social and economic issues as part of their conditional use authority.

4. What land use permits are required for feedlots?

Iowa

Only manure management plans for manure application are needed.

Wisconsin

Conditional land use permits are required by most of the counties in Wisconsin.

Nebraska

The application for a construction and operating permit must include a comprehensive nutrient management plan to ensure adequate land is available for waste application, based on the agronomic rate for nitrogen. Any land application area not owned by the operation is required to obtain a signed agreement with the property owner.

Missouri

If the facility is larger than 5 acres or is larger than 1000 animal units then the state requires a land disturbance permit.

North Carolina

In 1997 counties in North Carolina were authorized to regulate hog farms and other agricultural facilities above a specified size (600,000 pound liveweight capacity or about 4000 head finishing hogs). The State of North Carolina does not require land use permits, however the individual counties can on a case by case basis.

South Carolina

If the county has adopted a land use ordinance, the counties have land use authority over facilities.

Idaho

See number 3 above.

5. Are there other permits necessary before a feedlot can operate?

Iowa

Water withdrawal for greater than 25,000 gallons in a 24 hour period and a storm water if building on more than 5 acres.

Nebraska

Operations disturbing greater than 5 acres of land need a storm water permit. An operation may be required to obtain a dam safety review from the Nebraska Department of Natural Resources if the livestock waste control structure is of specific size or capacity. Both of these permits would be considered prior to issuance of a construction permit for the livestock waste control facility. Some county zoning regulations require a special use permit from the county to construct a livestock operation.

6. What role are stakeholders able to play in the feedlot permitting process?

Iowa

Public comments are solicited on each application. Participation in the rule-making process is also available.

Wisconsin

An environmental analysis is completed as part of the permitting process. The environmental analysis must go through a public notice process. Public notice of draft permits is also done to let the public know that the DNR intends to issue an operating permit and what the conditions for operation are.

Nebraska

Under the state permitting program, an application for construction of a Class II, III, and IV livestock waste control facility is required to be public noticed once the NDEQ determines the application is complete. The public notice is open for 30 days during which time the public can provide written comments on the application. There is no

opportunity for a public hearing. A public notice of a proposed NPDES permit provides for 30 days of public comment. There is an opportunity to request a public hearing under the NPDES program.

The state feedlot regulations have been developed through work group meetings consisting of representatives of producer groups, NRCS, NRDs, County Officials, University officials, environmental/citizen groups, and public input via state wide meetings.

Missouri

For those facilities that meet the permitting criteria, there is a public notification and public hearing. Comments received during that process are taken into consideration during permitting.

North Carolina

Boilerplate language of general permits goes through a public notice process but not each individual certificate of coverage. Once a permit is issued for an individual facility DWQ will issue a certificate of coverage for that facility. Individual permits can go to public notice at the Director's choice on a case by case basis.

South Carolina

A number of organizations were involved in developing the feedlot regulations for the state. After the department prepared the initial draft of the regulations, they worked with Clemson University, the soil conservation service, Farm Bureau, AgFirst bank, the Swine Board, poultry producers, dairy farmers, the South Carolina Coastal Conservation League, Sierra Club, other environmental organizations and legislative staff to do a line by line review of the proposed regulations and to develop a consensus.

An applicant proposing to construct a new or expand an existing animal growing operation is required to notify nearby property owners of their intent to construct a new agricultural facility or expand an existing agricultural facility. All permit issuances are public noticed by the South Carolina Department of Health and Environmental Control by placing the decision in a newspaper of general circulation in the area of the facility.

Idaho

The dairy Memorandum of Understanding was signed by Idaho DEQ, the ISDA, EPA Region X and the Dairy Association. Environmental organizations were not involved in developing the MOU. Smaller producers were upset about the new regulatory approach (there had been little regulation of feedlots in Idaho prior to the MOU) and raised questions about the approach in the state legislature. Ultimately, the legislature allowed the MOU to proceed.

7. Which state agency enforces the feedlot regulations?

Iowa

Iowa Department of Natural Resources

Wisconsin

Wisconsin's Department of Natural Resources, the Department of Agriculture, Trade and Consumer Protection.

Nebraska

The Nebraska Department of Environmental Quality enforces the State of Nebraska Title 130—Rules and Regulations Pertaining to Livestock Waste Control. It also has the authority to administer the NDPEP program.

Missouri

Missouri Department of Natural Resources

North Carolina

North Carolina Department of Environment and Natural Resources. North Carolina uses NRCS (soil conservation) staff to do inspections since they know farmers.

South Carolina

Department of Health and Environmental Control. The central office does all enforcement although HEC inspectors in district offices conduct inspections. Each of HEC's 6 districts has at least a half time person assigned to feedlot inspections with a total of about 8 to 10 person years. They conduct about 1600 inspections each year focusing on problem feedlots. There are approximately 1300 permitted facilities in the state.

California

State Water Resources Control Board, California Integrated Waste Management Board, California Department of Food and Agriculture.

Idaho

Under the Memorandum of Understanding, an agreement between Department of Agriculture (ISDA), Department of Environmental Quality (IDEQ), and EPA outlined which agency would be responsible for inspections and enforcement. The ISDA conduct periodic inspections of all dairies to evaluate waste collection treatment, handling, disposal, and management procedures for compliance with the Clean Water Act and Idaho Water Quality Standards and Wastewater Treatment Standards. The ISDA will notify IDEQ if a release cannot be stopped within 24 hours. The ISDA will conduct inspections of dairies only when requested by the ISDA. EPA discontinued its routine inspections of dairies under this agreement but will inspect when requested by ISDA or when EPA considers a situation to present a hazard.

For other facilities, waste issues are handled by ISDA, waster issues go to IDEQ, odor goes initially to ISDA but IDEQ will act if ISDA does not.

The state is in transition on regulatory authority. Currently both ISDA and IDEQ have some authorities but most will be transferred to ISDA for all feedlots, as well as dairies.

8. What enforcement tools are available?

Iowa

Notice of Violation (NOV), Consent Order, Administrative Order, and Referral to Attorney General's Office.

Wisconsin

The WPDES regulatory program is self-reporting. DNR expects operators to know the laws and be aware that they are supposed to apply for and get a permit issued prior to operating at or above the threshold level. If they fail to go through the permit process, they are violating state law.

On occasion operations are in exceedance of the 1000 AU threshold and the DNR works with the owner/operator to bring them into compliance. DNR has not shut anyone down or fined them for not knowing they were over the size limit. DNR relies on county Land Conservation Department staffs as well as NRCS and Dept of Ag, Trade and Consumer Protection (DATCP) field staff to assist both landowners and the DNR to rectify the situation.

If a permittee violates the conditions of their permit, the DNR has a stepped enforcement process in place. First they can be issued a NON (notice of non-compliance). This is to notify them that they are out of compliance and assist them in making whatever changes are required to bring their operation back into compliance. If that isn't successful, they can be issued a NOV (notice of violation). This is followed with an enforcement conference involving all interested parties in an effort to correct the problem and bring them back into compliance. If an operation still fails to cooperate, they can be turned over to the Department of Justice for prosecution. This whole process is lengthy and cumbersome and is avoided whenever possible.

If the operation is not a large farm with a permit, the DNR can issue a Notice of Discharge. The onus is on the DNR to make the connection that the discharge is directly to "waters of the state." Cost sharing is available to correct an adverse situation in this case and operators have a schedule of compliance that must be met. If they refuse to cooperate, they lose cost sharing eligibility and they can be forced to operate under a permit. Most farm operators do not want to be regulated by the DNR, so they avoid this whenever possible.

Nebraska

Enforcement tools available include: Letter of Warning, Notice of Violation, Administrative Order, and enforcement proceedings or injunctive relief by the county attorney or Attorney General.

Missouri

The DNR has authority under the federal Clean Water Act, including Notice of Violation and periodic inspection.

North Carolina

North Carolina is looking at a "planned intervention" process with smaller operations where first technical assistance, then cost-share is available. If the operation does not change, intervention proceeds to enforcement.

Enforcement tools that are available are injunctions, permit revocations, notices of violations, civil assessments, and criminal penalties.

South Carolina

Existing facilities with permits are inspected to determine effectiveness of in-place Waste Management Plans. As unpermitted facilities are identified, they will be inspected and required to submit a new Waste Management Plan to obtain a permit. The Department has an ongoing commitment to perform routine operation and maintenance inspections at agricultural facilities.

Enforcement actions typically involve an opportunity to voluntarily correct a problem after a first violation is identified. If the violation persists a conference is held with the operator. The conference is typically followed by a negotiated consent order that can include penalties.

The South Carolina Department of Health and Environmental Control has authority to issue orders and administer penalties for violations of law or permits issued under the authority of the law. Civil penalties can be up to \$10,000 per day per violation while criminal penalties can be up to \$25,000 per day per violation and/or imprisonment up to five years.

South Carolina has historically encouraged voluntary compliance with the Pollution Control Act and permit requirements. However, in the last ten years, the HEC has taken a more aggressive approach to enforcement on agricultural facilities. Enforcement orders are now issued with penalties, as appropriate, for violations of permits.

California

Most County District Attorneys have not prosecuted dairy operators for surface water discharges due to lack of resources (insufficient attorney time). However Environmental Task Forces have been formed to identify individuals or operations of any kind that have broken environmental law. The EPA has funded positions for a group of attorneys that will be deputized in specific counties for short time periods for the sole purpose of successfully prosecuting cases about environmental law. The Environmental Task Forces have been asked to identify operation (dairies included) for prosecution and as of early September 2000 one dairy has already received notification of a large fine (over \$100,000).

Idaho

Under the Memorandum of Understanding for dairy feedlots, dairy inspection and enforcement authority, as well as lagoon plan and specification review, was assigned to the Dairy Inspection office of the Department of Agriculture (ISDA). Among the

enforcement authorities that ISDA has is the authority to restrict a dairy from selling its milk.

The state is currently negotiating a beef cattle MOU. Review and inspection authority under the MOU will be housed with the Animal Health Division of ISDA.

9. *If this information is readily available, how many enforcement actions and what type of actions have been undertaken in the last three years, and what penalties have been assessed for these violations?*

Iowa

Iowa has maintained an ongoing record of all enforcement actions that result in monetary penalties or restitution since 1992.

Nebraska

The Department has issued numerous Letters of Warning, Notices of Violation, and Administrative Orders during the past three year. Since January 1, 1997, the state has utilized court action on 10 operations. All have resulted in penalties, ranging from \$500 to \$10,000.

In 1998, 1999, and 2000 (up to August 29, 2000), the Department conducted 190, 585, and 203 initial inspections, respectively. During those years, the Department has reviewed plans and specifications for the LWCF for approximately 120 applications yearly.

Missouri

There have been a lot of enforcement actions. The most notable action involved Premium Standard Farms. The action went to court and in August 1999, the company and the attorney general's office agreed to a consent judgement. PSF will spend 12.5 to 25 million dollars on applying new technology to environmental protection at their 21 hog farms. A panel of scientific experts has been assembled to review the proposed ideas for new technology. PSF is just beginning to implement some of the approved ideas. This decision was a model for the Smithfield Farms decision in North Carolina.

North Carolina

North Carolina has had 173 cases in this time, with a total of \$608,419 assessed. These include unpermitted discharge (27 cases), discharge violation (29), permit condition (28), operation (1), no operator designated (75), registration late (4), violation of waste plan (4), attorney general case (4), lab report (1).

Idaho

During the four-year history of the Memorandum of Understanding, 1996 to 1999, ISDA conducted 11,251 waste inspections. A total of 1830 noncompliance violations and 894 discharge violations were issued. Twelve of the 1999 discharges could conceivably have been considered to waters of the U.S.

10. Do local governments bring enforcement actions against feedlot operations?

Iowa

No, feedlots are regulated by the DNR.

Wisconsin

Local District Attorneys can get involved if they want to prosecute a citation that has been issued. Wardens issue citations for fish kills—usually due to the discharge of a deleterious substance. Sometimes it's easier to pay a fine than correct a problem by constructing BMPs. Some D.A.s are hesitant to pursue judgments against farmers that live next door.

Nebraska

Local governments have brought enforcement action against feedlots concerning violations of local regulations.

Missouri

The only local involvement would be the result of a health concern.

North Carolina

No, unless they adopt and enforce their own local ordinance.

South Carolina

Counties do not have feedlot inspection or enforcement authority.

California

See discussion in #8 above.

Idaho

The Idaho DEQ is responsible for environmental issues and the counties are responsible for social and economic issues as part of their conditional use authority.

Incentives

11. Describe any grant or loan programs that the state has to encourage best management practices for feedlot operations, to promote the installation of pollution control or abatement equipment at feedlots or to stimulate pollution prevention practices.

Iowa

None. There are some federal programs available that will assist feedlot operators.

Wisconsin

The farming operation must comply with a Notice of Discharge (NOD). The farming operation can request from the Department of Agriculture, Trade, and Consumer Protection cost-sharing technical assistance.

Wisconsin's Soil and Water Resource Management Program includes cost-share grants and incentive payments to landowners and land users. Activities eligible for cost-sharing include manure storage systems, manure storage abandonment, access roads or cattle crossings, filter strips, heavy use area protection, intensive grazing management, livestock fencing, livestock watering facilities, nutrient management, relocating or abandoning animal feeding operations, roof runoff systems, and waste transfer systems. The DNR may award a cost-share grant for a manure storage system if the department finds that the system is needed in order for a landowner or land user to comply with a DNR notice of discharge.

The WPDES permit applies to operations with 1000 animal units or more. WPDES permits include requirements for nutrient management, runoff control and proper manure storage. Unlike NODs, no state cost sharing is provided.

Nebraska

EQUIP funds through the Natural Resource Conservation Service (NRCS) for buffer zones and livestock waste control facilities for livestock operations less than 1000 AU.

Missouri

We have State Revolving Fund loans available for facilities under 1000 AU for improvements for environmental protection.

North Carolina

There is a very well funded cost-share program in place run by NRCS. It started with \$6.4 million and is now at \$8.4 million per year. \$2 million of this money pays for half of the cost of field technicians stationed in counties to help farmers design facilities. The counties pay the other half of the costs. 120 cost-share positions are funded in 100 different counties. Counties fund the entire cost of another 20-30 technicians. These technicians can sign off on most engineering plans and do all of the feedlot BMPs.

The voluntary BMP program can provide up to 75% cost-share. The technical assistance is free with the match for construction costs. Some of the cost-share can be in kind from the farmer.

New operations don't qualify for cost-share. Cost-share for expanded operations is only available for upgrades on the existing part of the operation. The cost-share cap is now \$150,000 and can only be used to meet standards.

North Carolina is looking at a "planned intervention" process with smaller operations where first technical assistance, then cost-share is available. If the operation does not change, intervention proceeds to enforcement.

South Carolina

Like other southeastern state programs, South Carolina's animal feeding operations program is implemented with technical assistance from the US Dept of Agriculture's NRCS. Clemson University and the cooperative extension service have a wide variety of programs for the agricultural community.

The extension service encourages farmers to take advantage of a variety of voluntary programs offered by the private sector. For example, John Deere sponsors a program called Managing Non-point Source Pollution in Agriculture, State Home*A*Syst (Home Assessment System) and Farm*A*Syst (Farm Assessment System) are voluntary programs that are offered nationwide. Poultry producers may get help from the Poultry Water Quality Consortium, while the Dairy Network Partnership offers assistance to dairy producers. The Manure Management Demonstration Project emphasizes record-keeping, milking center waste disposal and manure management.

Idaho

NRCS cost-sharing is available.

12. Identify any sales tax provisions that may encourage the purchase of pollution control equipment or property tax provisions that lower assessments for facilities used for pollution abatement.

Iowa

A property tax exemption for pollution control equipment for confinements is available.

Nebraska

Sales tax refund for pollution control equipment.

Missouri

Water pollution control equipment is exempt from state sales tax.

North Carolina

There are property tax provisions available for facilities used in pollution abatement.

13. Does your state have any other incentive programs to encourage responsible management of feedlots?

Iowa

Iowa has created an ongoing Organic Nutrient Management Fund to provide cost-share incentives to facilitate proper utilization of livestock manure and to protect water resources. In addition, Iowa has appropriated \$800,000 to ISU Extension for on-farm odor control demonstration projects. Participants pay half the cost of the technology they employ on their farms. So far 58 projects have been funded and 25 additional projects have been approved.

Nebraska

Some Natural Resources Districts have cost-share for construction of livestock waste control facilities, grass buffer areas, etc.

Missouri

The DNR Soils and Water Program and the NRCS work with operators.

Environmental Review

14. What, if any, environmental review requirements (environmental impact statements, environmental assessment worksheets, or analogous pre-permit review processes) apply to feedlots?

Iowa

There is no environmental review program for the state. There is a geological assessment done for construction permits for feedlots.

Wisconsin

WPDES permits are linked to environmental assessments. Environmental assessments require general operation information, economic impacts, description of affected environments (land, water, air), and cultural impacts.

An environmental assessment questionnaire is included in an application packet for a WPDES permit. This information is used to draft an environmental analysis. The environmental analysis is reviewed by the Department for Wisconsin Environmental Protection Act compliance and is required to go through a public notice process.

Nebraska

Initial site inspections of the existing or proposed livestock operation are conducted to determine the need for a livestock waste control facility (LWCF). Any pre-permit review would involve review of plans and specifications included in the actual permit application.

Missouri

There are approximately 300 facilities that meet the EPA definition of a CAFO. These are primarily hog facilities in the north and northwest part of the state, poultry in the west and southwest, and one or two cattle operations. These undergo permit review but there is no separate environmental review program.

North Carolina

There is no state environmental review program.

South Carolina

There is no environmental impact analysis required except in the coastal zone management area.

California

California has the California Environmental Quality Act, which is very similar to NEPA. In most instances regarding dairies, it is the county that would have the "lead agency" responsibility to prepare an environmental document under CEQA. There have been a number of lawsuits on this issue, including a couple brought by the Attorney General.

Idaho

There is no state environmental review program. Dairy operations must complete nutrient management plans. For other types of operations, there is review of the plans and specifications for ponds.

15. What criteria are used to decide the need for environmental review?

Wisconsin

Need for a WPDES permit.

16. If a pre-permit environmental review process is used, how many facilities were reviewed in each of the last three years?

Neither Wisconsin nor California had information regarding this question available.

17. How is information obtained in pre-permit environmental reviews used in the permitting process?

Wisconsin

Information is supplied by the permit applicant in an environmental assessment questionnaire. This information is used to draft an environmental analysis.

18. What role do stakeholders play in the pre-permit environmental review process?

Wisconsin

An environmental analysis is reviewed by the DNR for compliance with the Wisconsin Environmental Protection Act. It is also required to go through a public notice process.

19. Does your state do any cumulative impact analysis either in pre-permit environmental reviews, in permitting or in other contexts?

Iowa

Not currently, however, our TMDL program is just starting which will do analysis.

Wisconsin

No.

Nebraska

The State does not; some local zoning may consider cumulative issues under their regulations.

Missouri

We are beginning to implement the TMDL process in Missouri. No streams are listed primarily as a result of feedlot runoff.

North Carolina

Our state does not do any cumulative impact analysis either in pre-permit environmental reviews, in permitting, or in any other context.

South Carolina

The South Carolina Confined Swine Feeding Operation Act includes provision for the consideration of cumulative impacts.

California

Some counties are moving toward a generic environmental impact report approach, which would simplify the preparation of documents on individual permits.

Idaho

No

20. Does your state conduct generic environmental review?

None of the states reported doing generic environmental review.

21. If so, how are these generic impact statements used in environmental review for specific facilities?***22. If you conduct generic environmental reviews, are they periodically updated?*****Public Complaints*****23. How are public complaints about feedlot operations handled?*****Iowa**

By field office staff investigations

Wisconsin

Public complaints are handled locally. The state is split into 5 regions. Each region has staff assigned to address these complaints. They respond to calls and investigate to establish legitimacy of the complaint. They work with the owner/operator to resolve the issues.

The DNR has worked with citizen groups and encouraged their input throughout the permit process so they have some assurance that the DNR is doing its job to protect the environment while allowing the farming industry (mainly dairy) to expand and grow.

Nebraska

The Department investigates all complaints related to confined livestock operations within seven days of receiving the complaint. If the Department cannot respond to the complaint within the seven-day time frame, the Department contacts the complainant to inform them when the investigation will take place. Water quality violations from discharges are the Department's highest priority. The Department also receives complaints about odors, flies, and location. These are local issues not regulated by the Department; however the Department still conducts an inspection.

Missouri

We investigate citizen complaints, usually by sending out an inspector from the nearest regional office.

North Carolina

The Division of Water Quality handles public complaints by assessing the facility through a compliance inspection due to a complaint. This inspection may not be a total comprehensive inspection of the entire facility. The inspection in most cases will be narrowed to the issues of the complaint. This does not restrict DWQ from inspecting the entire facility for problems.

South Carolina

The South Carolina Department of Health and Environmental Control investigates all complaints received on agricultural facilities. District offices are required to follow up on complaints within 48 hours by at least calling the complainant back. Odor problems may result in enforcement but if odor continues despite doing everything according to permit, a facility may be asked to update its waste management plan to abate the odor.

Idaho

The state agencies get lots of feedlot complaints, most are odor related. Feedlots tend to be located in the southern interstate highway corridor that is the most populated part of the state. The odor policy is to work with operators the first two times that there are significant complaints. If the operator does not take steps to deal with the problem after two interventions, DEQ's policy is to file a nuisance action, although this has not occurred to date. This policy will soon be circulated for public comment.

Idaho has recently purchased two air quality monitoring trailers, which can be placed in areas where there are significant complaints. The monitoring is being done for data collection and not for regulatory purposes although better monitoring information may help create support for additional regulations.

24. Are there any administrative procedures to address public complaints?

Iowa

If a violation is found, a Notice of Violation is issued.

Wisconsin

See #23 above.

Nebraska

In accordance with the Livestock Waste Management Act, the Department public notices all complete applications for 30 days, which provides an opportunity for the public to submit written comments about the application. These comments may include complaints and are reviewed and responded to by the Department. There is no administrative process specific to complaints. The state does not have authority for administrative penalties.

Missouri

We have an Inspection and Maintenance Manual that field personnel follow.

North Carolina

There are administrative procedures to address public complaints.

South Carolina

See #23 above.

25. Are there any citizen suit provisions that could apply to feedlot operations?

Iowa

No. However actions have been taken under private nuisance provisions.

Wisconsin

An operation with a WPDES permit is protected from citizen lawsuits.

Nebraska

Not on a State level. There can be and are civil suits filed by citizens against livestock operations.

Missouri

These are addressed under the federal Clean Water Act.

26. Are you aware of any nuisance actions against feedlots filed by citizens?

Iowa

Iowa provides substantial protection for animal feeding operations against lawsuits based on nuisance. An animal feeding operation shall not be found to be a public or private nuisance and the animal feeding operation shall not be found to interfere with another person's comfortable use and enjoyment of the person's life or property under any other cause of action unless the person bringing the action proves that an injury to the person or damage to the person's property is caused by (1) failure to comply with federal or state statutes and regulations or (2) the animal feeding operation failed to use existing prudent generally accepted management practices reasonable for the operation. The plaintiff in a nuisance suit against an animal confinement may be required to pay all of the confinement's defense costs if the court determines that the suit is frivolous. Nuisance suit protection does not cover any animal confinement owners who are designated "chronic violators" by the DNR.

Wisconsin

Wisconsin first enacted its right-to-farm law in 1982. The law defines agricultural practice as any activity associated with an agricultural use. The law states that in any action in which an agricultural practice or use is found to be a nuisance, if the use or practice is located on lands not subject to a controlling ordinance, closure of the operation will not be available as a remedy to abate the nuisance unless the practice is a threat to the public health or safety. Only nominal damages may be assessed against the operation if it has been conducted at the same location, on substantially the same scale, and in substantially the same manner prior to the time the person bringing the nuisance action acquired his property. As a potential remedy available against agricultural operations, the court may order the operation to adopt practices, which will reduce the offensive aspect of the operation. The relief ordered by the court cannot substantially restrict or regulate the operation unless it is necessary to do so to protect the public health or safety.

Nebraska

If the livestock operation was there first, "right-to-farm" law protects it. Expansions are not protected from lawsuits by existing neighbors.

Missouri

The state has had such actions against hog CAFO's. There is currently one suit against Premium Standard Farms (not part of the previous consent judgement of 1999).

North Carolina

"Right-to-farm" law protects farms that have existed for more than one year without significant change. They must be found to be violating BMPs to be guilty of creating a nuisance.

South Carolina

Existing farms are protected under a “right-to-farm” law. No established agricultural facility or any agricultural operation at an established agricultural facility is or may become a nuisance, private or public, by any changed conditions in or about the locality of the facility or operation. This section does not apply whenever a nuisance results from the negligent, improper, or illegal operation of an agricultural facility or operation. The provisions of the law do not affect or defeat the right of a person to recover damages for any injuries or damages sustained by him because of pollution of, or change in condition of, the waters of a stream or because of an overflow on his lands.

California

Where agricultural operations are growing or processing crops or raising fowl or animals in a manner consistent with proper and accepted practices and standards, as established and followed by similar agricultural operations in the same locality, and employing measures for fly control, for manure management, removal, and disposal of agricultural crop waste, then that place is not deemed to be a public nuisance. A few counties in California have also adopted local right-to-farm laws.

Idaho

There are local right-to-farm laws.

27. Do you have any mediation processes that citizens could use to resolve complaints against feedlots?

Iowa

Voluntary mediation processes are encouraged by state statute to resolve conflicts. State law requires mediation before a nuisance lawsuit can be filed against an animal confinement facility.

Wisconsin

Wisconsin law provides for a farm mediation and arbitration program. A variety of disputes may be covered for mediation under this law, including disputes involving air, water or soil contamination or other environmental issues and disputes in which one party alleges that an action by, or condition of the property of, the other party is a nuisance.

Nebraska

The Department encourages citizens to discuss concerns with livestock operations and livestock operations to be good neighbors. The amended Title 130 requires those operations greater than 1000 AU to submit a plan for Best Management Practices to minimize odors with the application for a permit or upon modification of an operating permit.

Missouri

If it is a permitted facility, the Missouri Clean Water Commission can attempt to resolve complaints.

North Carolina

A mediation process has been created to be in effect prior to nuisance suits proceeding to court.

South Carolina

No

California

Such programs are administered at the county level.

Idaho

No

General

28. What is/are the biggest problem/s regarding regulation or management of feedlots for your state?

Iowa

Lack of funding for personnel to regulate. Inadequate field staff for field inspections of application records.

Wisconsin

The biggest problems or most frequent complaints we hear are odor issues. We currently do not have any regulatory authority over farm odors. We are working on some guidelines that will enable us to address this issue soon.

Historically, in Wisconsin, agricultural operations have been exempt from many laws that other industries have had to abide by. We are working to even the playing field but at the same time do it equitably and not put producers out of business with tons of costly regulations.

Nebraska

The biggest problem in regulating confined livestock operations is ensuring that the regulations are protective of the environment and not cost prohibitive for the producer. There are about a dozen environmental/citizen groups that are active in pursuit of more restrictive regulations to prohibit "factory farms." The producer groups are concerned that the regulations become more restrictive for the small "family" farmer when trying to address the large operations.

Missouri

This biggest issue regarding large livestock facilities in general is odor, although water problems are a major issue too.

North Carolina

North Carolina has 2200 hog feedlots and current estimates are up to 17,000,000 pigs. Hog operations at that level are not sustainable in North Carolina's environment.

Idaho

Two important issues for Idaho are (1) clarifying agency roles so that agencies don't just point at each other and (2) the industry recognizing that they have a problem that must be credibly addressed.

29. What is/are the most effective mechanism/s the state has for managing feedlots?

Iowa

Permit process

Wisconsin

The most effective tool for managing livestock operations is the WPDES permit.

Nebraska

The State has been working (regulating) livestock waste control facilities since 1972. Since that time, the state regulations have been amended several times to include protection of the ground water, increased storage requirements, engineering requirements, ground water monitoring, comprehensive nutrient management plans, emergency response plans, and operational & maintenance plans. These regulations are more restrictive than the federal requirements and are proactive. The regulations have been developed through work group meetings consisting of representatives of producer groups, NRCS, NRDs, County Officials, University officials, environmental/citizen groups, and public input via state wide meetings.

In addition, the State has outreached with several educational programs for technical advisors & engineers, producers, and other agencies (local and state). The Department is a member of a university-based committee that meets every other month to discuss problems in the industry associated with livestock waste and possible solutions.

And last, we believe that the personnel working within the program have been a positive force. These people have a great deal of knowledge and experience in the livestock industry and good communications skills. With this combination, the personnel can be at the same level with the producers and technical advisors to ensure the regulations are being met and the producer is aware of what he has to do to be in compliance with the regulations. Even though we are regulators, we still need a working relationship with those being regulated.

Missouri

We use our authority under the federal Clean Water Act. When the new odor rules go into effect, this may change the way the state manages feedlots.

North Carolina

The most effective mechanism the State has for managing feedlots are the issuance of permits and the enforcement provisions provided by the Division of Water Quality consisting of criminal and civil penalties, injunctions, and civil assessments.

South Carolina

A combination of a consistent permitting program, no discharges allowed, and legislative support for new rules.

Idaho

The memorandum of understanding regarding dairy operations.

30. Has the state initiated, or are there plans to initiate, any new programs or regulations to address feedlot issues?

Iowa

The state is looking more closely at open feedlot operations. They estimate that there may be about 500 in the state. The current requirements for open feedlots were written in the 1970s. Currently only larger confined operations are required to develop manure management plans. Open feedlots are not.

Wisconsin

Wisconsin is currently pursuing three changes in its programs to manage feedlots:

- Performance standards—DNR is drafting guidelines and hope to be completed by 2001. These still need to undergo review by the Legislature. The proposed operating standards would be set by the state. How the standards are met would be flexible and would be determined by the counties or on a site by site basis.
- Prohibitions—Based on recommendations from an Animal Waste Advisory Committee, the DNR is proposing some “common sense” procedures that are being written into rules. Some obvious guidelines, such as waste lagoons should not overflow, will be put into rule form (changing “shoulds” to “shalls”).
- Odor—Wisconsin is in the process of reviewing its programs for air quality as they pertain to LFO/CAFO/AFOs due to increases in corporate farm activity in Wisconsin and odor concerns regarding the Wisconsin Pollution Discharge Elimination Permit System permits. A CAFO/AFO Work Group was formed to review existing DNR policy on air quality. The Work Group determined that the existing guidance regarding odor complaint should be updated. Until a final guidance is developed, the work group developed interim guidance.

Nebraska

The legislature passed the Livestock Waste Management Act in 1998 and amended it in 1999. The Act required the State to revise its regulations to include prescribed review periods, public comment periods for complete applications, application and inspection fees, registration process, waste disposal requirements (for N & P), engineering requirements for applications, LWCF monitoring requirements, and application training. The Act also provided the Department with additional personnel to administer the

program. In revising Title 130, the Department also updated the regulations by outlining the information required in a permit application which included several plans (nutrient management, emergency response, operation & maintenance, sludge removal, closure and BMPs to minimize odor), decreasing percolation standards, adding additional requirements when a synthetic liner is utilized, and general housekeeping. The amended Title 130 became effective on February 28, 2000. At this time the Department is not proposing any new regulations.

Missouri

The new odor rules, described in question #1 is a new regulation. The state will be getting a new governor soon and any new initiatives may depend on the new governor's priorities.

North Carolina

North Carolina has a Governor's 10-year lagoon conversion plan. This plan sets out eight actions to be taken including: 1) continue close-out of inactive sites; 2) development of risk criteria including a rating system to rate swine operations; 3) conduct a risk rating process; 4) establish a technology panel, an interdisciplinary group to decide what constitutes a "new" technology; 5) provide the EMC with draft rules for performance and technology standards; 6) institute regulatory disincentives for retaining current technology; 7) conduct an economic feasibility study of conversion; and 8) develop a state nutrient plan which aims first to reduce the amount of animal waste generated and then promotes strategies for the true beneficial use of the animal waste.

North Carolina also has a 30% ammonia reduction goal. This is in part because the ammonia gets converted to nitrogen which creates air quality problems. Nitrogen deposition from North Carolina may be affecting the Chesapeake Bay.

The state is exploring whether a business can be created to manage feedlot operations and properly dispose of their wastes. They are hoping that a business would be able to take the excess nutrients, convert the wastes to a saleable product and market it.

Idaho

DEQ is doing memorandums of understanding with some counties. One county has already completed a MOU. Under the MOU, the counties can supply geologic information. That data is then combined with information from the application so that DEQ can classify the proposed facility as high, medium or low risk (or insufficient information). This classification can help the counties decide how detailed their conditional use permit should be. Among other things, a county can require alternative technologies (such as a digester) as part of their conditional use permit.

The same parties who negotiated the dairy MOU are now negotiating a beef cattle MOU.

31. Do any of your programs encourage feedlot operators to use new technologies for managing air quality or water quality problems?

Iowa

Iowa does not have any specific programs to encourage the use of new technologies to handle manure. According to Iowa state staff, most facilities handle manure using fairly standard technologies.

Wisconsin

New technology is always encouraged. DNR is currently working with several operations that are using digesters. They plan to use the methane produced by the manure on site to generate heat or electricity for on farm use. DNR encourages separation and reuse of volumes of flush water and sand for bedding. A couple of operations are composting the dried, solid portion of manure for reuse by gardeners and landscapers. One operation has covered the manure storage facility to trap methane and burn it off to eliminate odors.

North Carolina

The 10-year lagoon conversion plan discussed in #30 above, is encouraging the use of new technologies.

Botts felt that technology by itself is not the answer. The crucial issue is land use.

South Carolina

The South Carolina Department of Health and Environmental Control encourages the use of innovative and alternative technology. South Carolina Regulations, R.61-43, contain a section on the use of innovative and alternative technology. Setbacks and other requirements in the regulations may be reduced or eliminated, as appropriate, by the use of innovative and alternative technology.

Idaho

As discussed in #30 above, counties can require alternative technologies as part of conditional use permits. New technologies can be used to meet state standards. This is more likely for swine and poultry operations because requirements are stricter for them. Regulations probably wouldn't push dairy operations to use new technologies. However, dairy operations are running out of available land in the state and this may encourage the use of new technologies.

Footnotes for Chapter 2

- ¹ *Feedlot Financial Needs Assessment Report*, MDA, Feb. 1, 2001, (hereafter *MDA Needs Assessment*) tables 13 and 14.
- ² Minn. Stat. § 116.07, subd. 7(p).
- ³ Minn. Laws ch. 435, section 12 (2000).
- ⁴ Minn. Laws ch. 435, section 11 (2000).
- ⁵ *MDA Needs Assessment*, at 32.
- ⁶ *MDA Needs Assessment*, at 33.
- ⁷ Clean Water Act, subchapter VI, 33 U.S.C. §§ 1382-3.
- ⁸ Minn. Stat. § 17.117.
- ⁹ Minn. Stat. §§ 17.117, 103F.711.
- ¹⁰ Minn. Stat. § 17.117, subd. 11.
- ¹¹ Minn. Laws ch. 492, § 10, subd. 3 (2000).
- ¹² Minn. Stat. § 17.117, subd. 2.
- ¹³ Minn. Stat. § 103C.501.
- ¹⁴ Minn. Rules, pt. 8400.0300, subp.3.
- ¹⁵ Minn. Rules, pt. 8400.0900.
- ¹⁶ EQIP Q and A.
- ¹⁷ Minn. Stat. section 272.02, subds. 10, 28.

Footnotes for Chapter 4

1. See Minnesota Pollution Control Agency, *Draft Minnesota 2001 Nonpoint Source Management Program Plan* (hereafter *2001 Nonpoint Plan*), at 7-4 (December 2000); *Statement of Need and Reasonableness in the Matter of Proposed Amendments to Minnesota Rules Chapters 7001, 7002 and 7020 Relating to Animal Feedlots, Storage, Transportation, and Utilization of Animal Manure* (hereafter *SONAR*), at 8 (December 8, 1999).
2. Minnesota Pollution Control Agency, *Report to Legislature on The Minnesota Pollution Control Agency's Ability to Meet 60-day Issuance Deadline for Feedlot Permits* (hereafter *60-day Study*), at 9 (November 15, 2000).
3. *2001 Nonpoint Plan*, at 7-1
4. *SONAR*, at 8.
5. *Id.* at 9.
6. United States Environmental Protection Agency, *Draft Federal Register Notice for the National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations*

(hereafter *Draft NPDES Notice*), at 42 (December 2000).

7. *SONAR* at 14.

8. *SONAR* at 10.

9. *SONAR* at 13.

10. See *Final Technical Work Paper for Human Health Issues*, January 2001, by Earth Tech., Inc., page 32.

11. *Draft NPDES Notice*, at 45.

12. *Id.*

13. *Id.*

14. *Id.*

15. *Id.*, at 46.

16. *Id.*

17. *Id.*

18. *Id.*

19. *Id.*

20. *Id.*

21. For example, Minnesota Statutes section 116B.02, Subds. 2 and 7.

22. See, e.g., B. Swift, *Designing Environmental Laws That Work: An Analysis of Firm's Responses to Regulation Under Title IV of the Clean Air Act* (hereafter *Designing Environmental Laws*) (to be published in the *Tulane Law Review*; U.S. Environmental Protection Agency), National Advisory Council for Environmental Policy and Technology, *Permitting and Compliance Policy: Barriers to U.S. Environmental Technology Innovation* (1991).

23. See, e.g., The Aspen Institute Series on the Environment in the 21st Century, *The Stewardship Path to Sustainable Natural Systems* (hereafter *The Stewardship Path*), at 1-6 (1999); The President's Council on Sustainable Development, *Sustainable America: A New Consensus*, at 7-9 (February 1996).

24. See Office of the Governor, *Pollution Control Agency, 2002 to 2003 Budget-Executive Summary*, at D-6.

25. See L. Paddock, *Business Motivators for Environmental Performance* (hereafter *Business Motivators*) (December 15, 2000).
26. See, for example, The Aspen Institute Series on the Environment in the 21st Century, *The Stewardship Path to Sustainable Natural Systems* (1999); Enterprise for the Environment, *The Environmental Protection System in Transition: Towards a More Desirable Future*, at 51-57 (January 1998).
27. See *Business Motivators*, at 23-26.
28. M. Sparrow, *The Regulatory Craft: Controlling Risks, Solving Problems, and Managing Compliance*, at 17 (Brookings Institution Press 2000).
29. *Id.* at 20.
30. *Id.* at 28.
31. *Id.* at 100.
32. *Id.* at 201-202.
33. National Academy of Public Administration, *environment.com: Transforming Environmental Protection for the 21st Century* (hereafter *environment.com*), at 12 (2000).
34. Minn. Rules section 4410.1000, subp. 3.
35. Legislative Auditor, at 82.
36. These figures derived from a computer search of published and unpublished cases of the Minnesota Supreme Court and Court of Appeals, using the official appellate courts' database and search engine (which includes cases from May 2, 1996), and searching for the term "feedlot."
37. See *Draft NPDES Notice*.
38. See Minn. Rule section 7020.2225.
39. See *2001 Nonpoint Plan*, at Chapter 9.
40. See *Id.*, at 7-13.
41. See *Generic Environmental Impact Statement on Animal Agriculture: A Summary of the Literature Related to the Role of Government*, at C-85.
42. *Id.*
43. Pork Producers' Association, *Environmental Assurance Program*.

44. Minnesota Milk Producers Association, *Dairy Quality Assurance and Profitability Program*.
45. See The Minnesota Project, *Whole Farm Planning: Creating Profitable Farms that Protect the Environment*; Minnesota Working Group on Whole Farm Planning, *Whole Farm Planning: What it Takes* (Land Stewardship Project July 1997); David Mulla, Les Everett, Gigi DiGiacomo, *Whole Farm Planning: Combining Family, Profit, and Environment* (Minnesota Institute of Sustainable Agriculture 1998).
46. See Minneapolis StarTribune, at D1 and D10 (February 25, 2001).
47. *environment.com*, at 68-69.
48. *Designing Environmental Laws*.
49. The issue is also under consideration in the current legislative session.
50. Minn. Stat. Sections 114C.20-.24 (2000).
51. Minn. Stat. Section 114C.24 (2000).
52. Legislative Auditor, at xvii (January 1999).
53. *Id.*, at xiii.
54. *60-day Study*, at 14-15; Office of the Governor, *Pollution Control Agency 2002-2003 Budget-Executive Summary*, at D-6.
55. Legislative Auditor, at 45.
56. U.S. Environmental Protection Agency, *National Water Quality Inventory* (1998).
57. 66 Federal Register at 2959.
58. United States Environmental Protection Agency, *Proposed Regulations to Address Water Pollution from Concentrated Animal Feeding Operations* (December 2000).
59. Minn. Stat. section 116.06, subd. 4a (2000).
60. Minn. Stat. section 116.07, subd. 7b (2000) requiring feedlot permits to meet the time lines established in Minn. Stat. Section 15.99.
61. Minn. Stat. section 116.07, subd. 7m (2000).
62. *60-day Study*, at 19.
63. *Id.*

64. Id.

65. Id., at 18.

66. *Legislative Auditor*, at xx-xxi.

67. See *environment.gov*; at 160.

68. *60-day study*, at 19.

69. See *Literature Related to the Role of Government*, at C-85.

70. See draft Green Tier legislation section 4 to be codified as Wisconsin States section 560.125 found at www.dnr.state.wi.us/org/caer/cea/green_tier/index.html

71. *60-day Study*, at 12.

72. Id.

73. Id., at 13.

74. Minn. Rule part 7020.0300, subpart 19a (B).

75. See Minn. Rules Chapter 7001.

76. Minn. Rule part 7020.2000, subp. 4

77. *60-day Study*, at 14.

78. See Clean Water Network, the Izaak Walton League, and The Natural Resources Defense Council, *Spills and Kills: Manure Pollution and America's Livestock Feedlots* Chapter 3 (August 2000).

79. The Aspen Institute Series on the Environment in the 21st Century, *The Alternative Path: A Cleaner, Cheaper Way to Protect and Enhance the Environment*, at 19 (1996).

80. See Minn. Stat. section 561.19.

81. *Feedlot Financial Needs Assessment Report*, Feb. 1, 2001, Minnesota Department of Agriculture, 15.

82. See MERA at Minn. Stat. ch. 116B. The exclusion of farms from the definition of "person" is at section 116B.02, subs. 2 and 7.

83. See *Fighting Corporate Pigs: Citizen Action and Feedlot Regulation in Minnesota*, by Trevor Oliver, 83 Minn. L. Rev. 1893, June, 1999, which argues that dropping the MERA exclusion for feedlots would be a better approach to increasing citizen action than

changing the nuisance laws.

84. Minnesota Statutes section 17.136 (2000).

85. Minn. Rule section part 7020.0350.

86. *See* Green Mountain Institute for Environmental Democracy, *Environmental Results Management Systems: Moving from Planning to Action by Measuring What Counts* (August 2000).

87. U.S. Environmental Protection Agency and the Environmental Council of the States, *A Blueprint for the National Environmental Information Exchange Network* (2000).

88. *See, e.g.*, U.S. Environmental Protection Agency, Office of Enforcement and Compliance Assurance, *Enforcement and Compliance Data Public Access Workgroup*, at 1-2 (July 14, 2000).