

Environmental Management Systems
(EMS)

Supplement

For EMS Educators and Coaches



Developed by the **Partners for Livestock EMS Project**

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Disclaimer

The Partners for Livestock EMS products reflect the best professional judgment of the contributing authors and are based on information available as of the publication date. In particular, the sections related to "What Else Is Needed to Reach ISO 14001?" may require that producers seek a knowledgeable advisor to assist in interpreting and applying that standard to their operation.

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

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Introduction

Environmental Management Systems (EMS) have been implemented worldwide by businesses, including farms, of all sizes. An EMS is a management-based approach for improving environmental performance of the farm or ranch operation. If you are familiar with the principles of Total Quality Management (TQM), you will find many similarities. Each EMS follows a similar framework, but implementation will differ for each farm or ranch.

Before continuing through this supplement, read the introductory booklet, Agriculture Environmental Management Systems.

Many of the Pieces are Already in Place

Most farms and ranches already have many of the important pieces for an EMS, since almost every activity on a farm or ranch has the potential to impact the environment. Many different incentive programs, as well as regulatory programs, have been developed to address growing concerns about agriculture’s impact on air, water, soil, and other resources. Participation in or compliance with various programs has resulted in a large number of technical plans, generally developed without consideration of each other. These existing environmental permits, conservation plans, nutrient management plans, and other plans as well as current records all are important pieces of the “puzzle.” An EMS adds some of the “process” pieces such as priorities, identifying and controlling potential sources of error, monitoring progress, and making improvements.

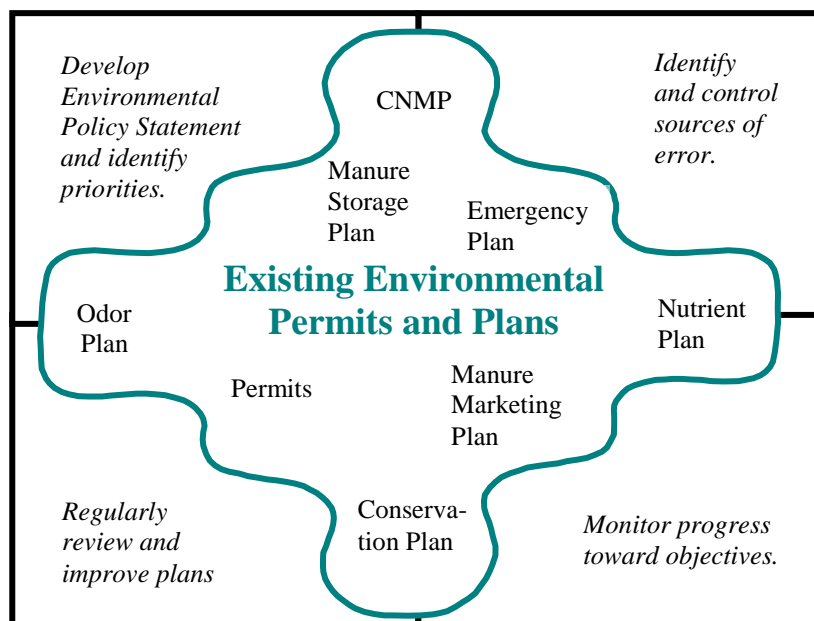


Figure 1. The Environmental Management System (EMS) “puzzle.” Existing environmental management activities are not replaced or duplicated by an EMS. The EMS (see items in italics) enhances these efforts by adding “process” pieces to ensure successful, on-farm implementation of a plan.

An EMS does not ignore business management. As a good citizen, a producer should be concerned how their farm affects others. As a good businessperson, one should also be concerned about productivity, input costs, and waste treatment and disposal costs. In a world of ever-shrinking margins, agriculture simply cannot afford pollution or its liability. Incorporating environmental stewardship into profitable business management is the goal of an EMS.

These materials are meant as a flexible template to assist in the implementation of an agricultural EMS. They can and should be modified to ensure they meet a producer's needs or fit into a particular program. For example, they could be altered to reflect local regulations, incentive programs, or a lender's requirements for a lower interest rate. A producer may also see ways to reorganize or edit these materials to integrate with their existing efforts. An MS Word® version of all livestock EMS documents can be accessed at <www.lpes.org>.

What are Some of the Options?

Table 1 on the following page outlines some different approaches toward environmental improvement. These options are also explained below:

A basic approach is an “environmental assessment.” This is a snapshot in time of environmental performance. This approach is not as robust as an EMS, because assessments do not indicate whether environmental performance is improving or deteriorating unless repeated and compared to the previous assessment. They are a good starting point for evaluating current performance and identifying areas where improvement is needed. Some benefits of using assessments include:

- Knowledge of environmental and regulatory risks
- Identification of priorities for future environmental plans and activities.

The *EMS Fact Sheets and My EMS Workbook* can be used as a guide to the development of a “functional” EMS. This approach builds on the risk identification and priority-setting processes of an assessment by adding in critical management functions to ensure that environmental plans are developed, implemented, and regularly reviewed. Some of the benefits that may be realized through a functional EMS include the following:

- Stewardship plans that target the operation's most significant environmental issues and risks.
- Pro-active farm/ranch commitment to environmental improvement.
- Improvements in employee training, knowledge and morale. (Allowing managers to take a vacation or give more responsibilities to others.)
- A mechanism for finding cost savings and/or improving efficiency
- Identifying and controlling potential sources of errors. (Spending less time “putting out fires” and more time managing the operation)
- Improved relationships with neighbors, the community, and regulators.

A functional EMS needs to be robust enough to allow those internal to the farm or ranch to develop, implement, maintain, and improve the plan. The complexity of the records and documentation will largely reflect the complexity of the stewardship plans or complexity of the farm or ranch structure. A farm/ranch operated mostly by a single person or with no regulatory requirements will not need the same level of detail or complexity in much of their EMS records as a large, regulated operation or one with many employees or levels of management.

Some livestock or poultry operations may wish to pursue an EMS that can be “registered” or “certified.” There may be some benefits from participation in a structured program:

- Receive some type of regulatory relief or recognition. (Not all state regulatory agencies offer a program of this type.)
- Opportunity to negotiate lower insurance or interest rates if your insurer or lender is satisfied that your EMS will lower risks.
- Gain access to higher-value markets or meet customer demands.

Directions: To track efforts, checkmark the appropriate box when an activity is implemented. Some activities (audit, management review) need to be repeated on a regular basis. A frequency of repetition might be a more appropriate note than a checkmark (monthly, quarterly, annual, etc.).

Table 1. Three potential levels of EMS implementation.

EMS Element	Environmental Assessment	Functional EMS	ISO 14001
Policy Statement			
Work Sheet 1. What Are My Significant Environmental Issues?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Work Sheet 2. My Environmental Policy Statement		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Plan			
Work Sheet 3. Communications		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Work Sheet 4. What Are My Priorities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Work Sheet 5. Assessments Completed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Work Sheet 6. Stewardship Plan for...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implement			
Work Sheet 7. Training Needs		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Work Sheet 8a. Environmental Records and Work Sheet 8b. EMS Records		<input type="checkbox"/>	<input type="checkbox"/>
Work Sheet 9. Standard Operating Procedures		<input type="checkbox"/>	<input type="checkbox"/>
Work Sheet 10. Emergency Response Plans		<input type="checkbox"/>	<input type="checkbox"/>
Check and Correct			
Fact Sheet 11a. Are We Identifying and Addressing Problems?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Work Sheet 11. Audit		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Review and Improve			
Work Sheet 12. Management Review		<input type="checkbox"/>	<input type="checkbox"/>

Grey boxes indicate functional EMS components where additional effort would be required to conform to the ISO 14001 standard.

Note: If desired, the three potential levels of EMS implementation can be copied and handed out to producers. They can use it to track progress through this process. It can also serve as a visual depiction of the steps outlined in these materials, how they relate to each other, and to the Plan/Implement/Check and Correct/Review and Improve cycle printed on the cover pages.

To receive the benefits, a registered EMS will need to conform to certain requirements and standards. The most well-known standard is ISO 14001. Registration to this standard means that a farm or ranch has complied with an internationally recognized process for demonstrating commitments to pollution prevention, regulatory compliance, and continual improvement. Other programs may be offered through various organizations such as the Environmental Protection Agency (EPA), state environmental agencies, producer groups, or purchasers of your farm's products. Such recognition programs are usually based on this international standard.

A registered EMS will need to include records and documentation for an EMS to function internally. It will also need to ensure that these are complete and detailed enough to allow an outside person or agency to evaluate conformance to program standards. This third-party audit is generally required in structured programs.

The functional EMS outlined in these materials closely follows the ISO 14001 standard. A farm or ranch owner/operator wishing to obtain ISO 14001 registration will make significant progress toward that standard through the use of these materials. Areas that will require additional effort to reach that standard will be outlined throughout this supplement in sections titled "What Else is Needed to Reach ISO 14001?"

What is the Scope?

An EMS does not need to be everything at once. There is some freedom to focus on a portion of the farm or ranch (a single location or a single enterprise). Consider the following questions:

- If the farm has more than one site or location, do the owner/operators want to implement this process at all sites? If not, which sites/farms?
- If the farm is diversified, do the owners/operators want to implement this process for all production enterprises or focus on a single enterprise? (It may sometimes be difficult to determine where the environmental impacts of one enterprise end and where another begins).
- What legal requirements exist? Legal liability alone suggests that the scope of the EMS should include pieces of the system that are subject to regulations.

As producers work through these materials, there will be opportunities to further prioritize and focus on critical activities within their selected scope. A wide range of issues including soil, air, water, and energy could potentially be addressed. However, time and the financial resources of a farm or ranch will generally require that some prioritization is done. An EMS should focus initially on activities related to issues of greatest immediate interest and/or environmental risk and gradually address a broader set of concerns. "Handout 1. What Are My Significant Environmental Issues?" assists in identifying the issues of greatest concern.

What is ISO 14001?

ISO is the International Organization for Standardization. ISO 14001 is the Environmental Management Systems International Standard. Other standards in the ISO 14000 series address environmental labels, environmental auditing, life cycle assessments, and environmental performance. They were developed to promote a uniform, worldwide approach to environmental protection for all industries and businesses.

For more information about ISO or the 14001 standard or registration, go to <http://www.iso.org> or <http://www.anab.org>.

Limiting scope is an acceptable way to get started with an EMS. Environmental improvement requires time and/or resources, and it may simply be too overwhelming to consider all issues, locations, or enterprises at once. A cornerstone commitment of an EMS is that of continual improvement. Expanding scope in the future is one way to demonstrate continual improvement.

Lessons Learned

These materials are the result of a project titled “Partnerships for Livestock Environmental Management Systems.” Over 200 dairy, beef, and poultry producers from nine states participated in this project to examine the application of EMS concepts to a wide variety of agricultural operations. The project was funded by the USDA Cooperative State Research, Education, and Extension Service through an Initiative for Future Agriculture and Food Systems program. For more information about the project, go to <http://www.uwex.edu/AgEMS/livestock/>.

Some of the lessons learned by the educators in this project may be useful as you begin setting up your educational program. The following observations are generalizations and should not be viewed as the only way to conduct your program.

Identifying and recruiting participants takes patience. Motivating producers to begin an EMS was most successful through personal contacts with someone trusted by the producer. The reasons that motivate them to start the process were commonly related to a desire to be proactive, responsible managers and/or external pressures that indicated they were viewed differently. Many participants in the “Partners” project were characterized as leaders who were extremely interested in environmental issues and good management skills. Producers with past experience with principles of Total Quality Management also recognized the value of an EMS.

Stakeholders are important. Involving stakeholders (commodity groups, producer cooperatives, regulators, environmental groups, policy makers, innovative producers, NRCS, soil and water district staff, lenders, insurers, ag consultants) was considered to be critical by several of the pilot teams in the Partners project. Some stakeholders may be able to offer incentives such as reduced interest rates or insurance premiums, recognition of producer efforts, marketing benefits, regulatory relief, financial incentives, certification, or others. Even if incentives are not possible, a broad advisory or stakeholder group can offer advice for customizing materials and recruiting participants. In some cases, one or more stakeholders made a decision to continue promoting EMS even after the support provided by the Partners project ended.

Producers and educators/coaches will be making a large time commitment. This process is time-consuming and producers view their time as valuable. Time was a common reason given for not engaging in the process or for dropping out of a program. On the flip side, educators/coaches noticed that those who put the most time and effort into their EMS were also the most enthusiastic about the return they were getting from their EMS investment. One producer who had fully implemented an EMS felt that the time he spent (and continues to spend) on his EMS was equivalent to time he used to spend handling crisis situations and monitoring employees. In his view, the EMS was time better spent because it was about better management.

Keep in touch. Regular contact between the producer and educator/coach is important. Producers (especially those working in a self-led format) generally stopped when faced with roadblocks and did not contact the educator/coach with questions. Educators/coaches saw benefits in regularly picking up the phone to ask “How is it going?” and/or scheduling face-to-face meetings (group workshops or individual meetings). However, educators/coaches should always remember that their role is to be a resource and

encourage continued progress, not to make decisions for the producers. If it is to be successful, the EMS must be “owned” by the producer.

These materials are templates that can be changed to fit your situation. As much as possible, you are encouraged to edit, rearrange, create new examples, substitute your own resources, or tailor these materials to make this process user-friendly and as relevant to your audience as possible. Producers tended to notice examples and terminology that were generic or did not apply to their production system. Some producers also liked to have printed copies to write on, while others asked for electronic copies they could put onto their computers. An MS Word® version of all EMS documents can be accessed at <www.lpes.org>.

How do we know we were successful? Defining “success” can be difficult. While it would be desirable to have every operation develop a full-blown EMS with a complete set of written plans and accompanying documentation, it may not happen that way. Most producers were very interested in identifying and mitigating environmental risks on their operations, but there were varying degrees of interest in developing written plans, documenting their efforts, or keeping records. Many who dropped out of the process or were put off by the paperwork still had positive things to say about their involvement and/or had made environmental improvements to their operation. An EMS is not necessarily an innovation or practice that needs to be fully adopted to be successful. It is, in fact, a “process” that producers can use to recognize and react to changing circumstances. A producer who has been exposed to some of the tools in this process might find them useful in the future, even if they do not use them now.

Tasks for the Educator or Coach Before First Meeting with Producer(s)

Each of the different pieces that make up these materials have a distinct purpose and use within this educational program. Suggested ways to use them are below:

1. Review the handouts (in this supplement), *My EMS Workbook*, and the *EMS Fact Sheets*. With help from your stakeholder advisory group (if applicable), edit or revise them or substitute your own materials. Make sure the terminology and references apply to your geographical location, the type of producer you are working with, and state/local regulations that affect ag producers. If incentives are being offered to the producer(s), the materials may need to be edited to emphasize or reflect particular requirements of the program.
 - a. Especially be sure to review “Handout 5. Potential Resources for Environmental Assessments.” Using resources on this handout, pre-existing resources in your state, or others, you may wish to pre-select a resource or customize one for the producer(s) you will be working with. If desired, you can also identify people in your area (such as NRCS, soil and water conservation district, cooperative extension, private consultants) willing to visit these operations and assist in the assessment process.
2. Before the first meeting with the producer(s) make copies of the *My EMS Workbook* and the *EMS Fact Sheets* packets. If desired, they can be put into a three-ring notebook with divider sections to accommodate the handouts, sample record-keeping forms, examples, or other materials that may be given out as the program continues.
3. Develop a presentation (or informal discussion) about the materials that will be covered at each meeting (can be either a group workshop or individual meeting). A summary of the fact sheets, tasks they need to complete, instructions for completing handouts and the work sheets in the *My EMS Workbook*, and other relevant information could be covered. Ideas for group discussion are listed on each supplement sheet.

4. The handout, or materials you substitute for them, should be copied and given out at the appropriate point in the process. These materials can be given to the producer at a meeting or mailed out beforehand, giving them a chance to read them and/or complete particular tasks ahead of time.

The table in the following page suggests a possible way of organizing your educational program. Your audience and their needs, local conditions, time available and other factors may affect the order or grouping you choose to present these topics or the emphasis placed on any single topic. If you edit the materials, substitute your version for those listed here or remove references to those you do not plan to use.

Table 2. [Suggested series of workshops \(or individual meetings\) and topics.](#)

Suggested Outcome	<i>EMS Fact Sheets</i>	Suggested My EMS Workbook activities	Optional Handouts	Homework Assignment
Environmental Policy Statement (and laying the groundwork for Plan) (meeting or workshop #1)				
<ol style="list-style-type: none"> 1. Awareness of the EMS process and its components 2. Awareness of the timeline and what to expect of this program 3. Awareness of significant environmental issues specific to producer’s farm/ranch 4. Completed policy statement 5. List activities related to significant issues and ID those that are priorities (will be addressed this year). 6. Assess environmental risk for at least one priority. 	<p>See <i>Agricultural Environmental Management Systems</i> (AEMS) booklet.</p> <p>Fact Sheet 1. What Are My Significant Environmental Issues?</p> <p>#2. My Environmental Policy Statement</p> <p>#4. What Are My Priorities?</p> <p>#5. What Risks Are Significant?</p>	<p>Work Sheet 1. What Are My Significant Environmental Issues?</p> <p>#2. My Environmental Policy Statement</p> <p>#4. What Are My Priorities?</p>	<p>Handout 1. Identification of Significant Envir. Issues</p> <p>#2a. Ex. Stewardship Commitments</p> <p>#2b. Ex. Environmental Policy Statement</p> <p>#2c. Draft Environmental Policy Statement</p> <p>#4a. Common Legal Requirements that Apply to Agriculture</p> <p>#4b. Do I Need an NPDES Permit?</p> <p>#5. Potential Resources for Environmental Assessments</p>	<p>Review related permits, conservation plans, or other previously completed plans.</p> <p>Share policy statement with family and employees and revise based upon suggestions.</p> <p>Complete an assessment of at least one farm/ranch priority.</p>
Plan (meeting or workshop #2, 2-3 weeks after #1)				
<ol style="list-style-type: none"> 1. Review/share policy statements and environmental risks. 2. Assign internal communication tasks and develop external communication plan. 3. Complete stewardship plan for one priority. 4. Identify an objective and performance measures for the stewardship plan. 5. Identify responsible farm staff and training needs for critical steps in stewardship plan. 	<p>Fact Sheet 3. Communications</p> <p>#6. Stewardship Plan</p> <p>#7. Communications and Training</p>	<p>Work Sheet 5. Assessments Completed</p> <p>#3. Communications Checklist</p> <p>#6. Stewardship Plan for _____</p> <p>#7. Training Needs</p>	<p>Handout 3. External Communication Ideas</p> <p>#6. Resources for Technical Support of your EMS Plan</p> <p>#7. Training Log</p> <p>#8. Stewardship Plan Fact Sheet</p>	<p>Discuss internal communication assignments, share external communication plan with staff; revise if needed.</p> <p>Review stewardship plan with family/staff and revise if needed.</p> <p>Discuss training needs with staff; revise if needed.</p> <p>Develop stewardship plans for the other priorities to be addressed this year (if any are needed).</p>

Table 2. Suggested series of workshops (or individual meetings) and topics (continued).

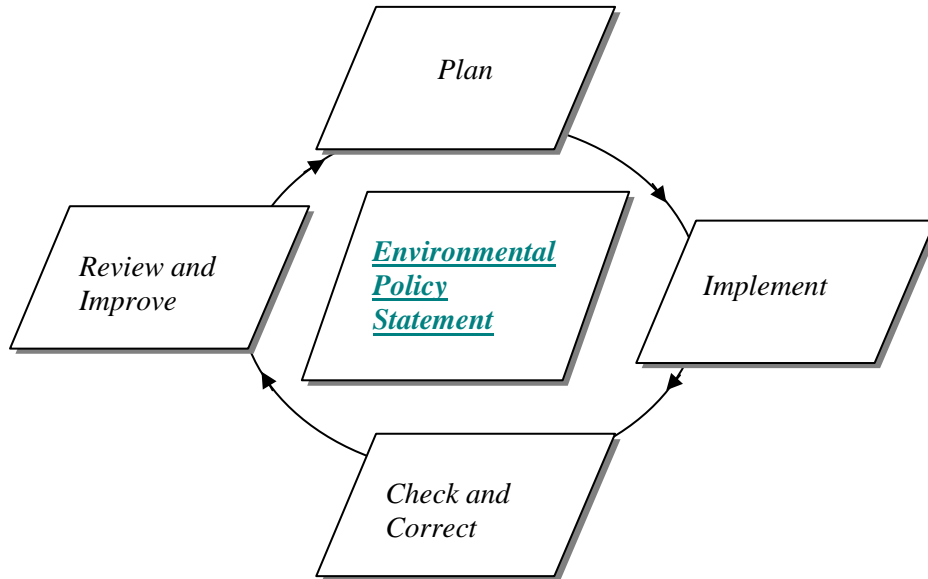
Implement (meeting or workshop #3, 2-3 weeks after #2)				
<ol style="list-style-type: none"> Review stewardship plans with focus on performance measures and staff responsibility and training. Identify record-keeping requirements. Identify needed standard operating procedures (SOPs). Identify issues to be addressed with Emergency Response Plans (ERPs). 	Fact Sheet 8. Keeping Track of It All #9. Standard Operating Procedures (SOPs) #10. Emergency Response Plans (ERPs)	Work Sheet 8a. Environmental Records #8b. EMS Records #9. Standard Operating Procedures (SOPs) #10. Emergency Response Plans (ERPs)	Continue to use Handout 8. Stewardship Plan Fact Sheet #9. Sample SOP #10. Emergency Response Plan Template Also see <i>Sample Record-Keeping Forms</i> booklet for templates that producers can use or modify.	Identify or develop necessary records forms. Complete SOPs and ERPs identified on Work Sheets 9 and 10. Ask an independent party to review records and plans and offer suggestions. Conduct necessary staff training based on stewardship plan, records, SOPs, and ERPs.
Check and Correct (meeting or workshop #4, 6 months after #3)				
Plan field trip to farm that has implemented an EMS. ¹ Have participants share progress and challenges in EMS implementation. Audit communications section (to get a hands-on feel for the audit process before they go home).	Fact Sheet 11a. Are We Identifying and Addressing Problems? #11b. Did We Do What We Planned?	Work Sheet 11 Audit Plan	Handout 11a. Audit Checklist: Overall EMS #11b. Audit Checklist: Stewardship Plans	Review and discuss communications audit results with staff. Conduct a complete audit of all EMS sections.
Review and Improve Plan (meeting or workshop #5, about one year after #1)				
Plan field trip to farm that has completed EMS audit. ¹ Have participants share issues identified from their audits. Compare environmental performance measures at beginning and end of year for one stewardship plan. Complete management review for communication section (to get a feel for the process).	Fact Sheet 12. Where Do We Go From Here?	Work Sheet 12. Management Review Plan	Handout 12. Management Review Checklist	Report and discuss results of communication management review with staff. Discuss environmental performance with key personnel and celebrate improvements. Conduct a complete management review and begin a new cycle of continual improvement.

¹Field trip to farm may have value in encouraging farmers to take ownership of their EMS. As part of tour, highlight host farmer's facilities, environmental practices, and EMS activities.

Environmental Policy Statement

Purpose

The Environmental Policy Statement establishes the stewardship commitments important to you and others who live and work on the farm/ranch. It sets the direction for the environmental efforts of your livestock or poultry operation. It is one of the first pieces of information you will share with farm staff and possibly community members because it defines the environmental stewardship principles important to your animal feeding operation.



Outcome

By the conclusion of the “Environmental Policy Statement” section, you will have facilitated:

- Identification and listing of the environmental issues of greatest importance to their farm/ranch.
- Establishing an Environmental Policy Statement that places into words those priorities and commitments considered most critical to their livestock or poultry operation.

Supplement 1. Significant Environmental Issues

Outcome

After completing Handout 1 and Work Sheet 1, the producer will have a list of significant environmental issues and farm/ranch activities that may be related to those issues.

Tasks to be Completed with Each Producer

Before starting this process, it may be helpful for a producer to gather and review some important items. These may include maps, permits, existing environmental plans, leases, etc.

1. Read and discuss Fact Sheet 1 and/or other relevant information.
2. Complete “Handout 1. Identification of Significant Environmental Issues.”
3. Complete Work Sheet 1 in the *My EMS Workbook*.
4. Encourage producers to discuss Work Sheet 1 with their key personnel (who were not able to be at the meeting) and revise it based on their input.

Ideas for Group Discussion

- Who are your key personnel? Whose input do you plan to include at each of the steps in this process?
- What are the “hot topics” in this state or local community? What groups or individuals are most concerned about these issues?
- What features (such as housing development, state park, high- permeability soils, sinkholes, permanent stream or water body, endangered or desirable wildlife species, etc.) on or near your operation are likely to make certain environmental issues more relevant?

What Else is Needed to Reach ISO 14001?

If an operation plans to conform with the ISO 14001 standard, they need a list of the significant environmental “aspects” and “impacts” of the organization. Environmental aspects are an element of an organization’s activities, products, or services that can interact with the environment. Environmental impacts are any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization’s activities, products, or services. In these materials, the identification of significant environmental issues (Step 1) coupled with an environmental assessment process (Step 5) are the equivalent of identification of significant environmental aspects and impacts.

Handout 1. Identification of environmental issues significant to my operation.

Potential Environmental Issues Step 1. Review potential issues. Step 2. Skip issues that do not apply. Step 5. When done, circle issues you judge significant.	Step 3. Place an "X" in a box if concern exists. Step 4. List site-specific risk factors important to this issue (such as downwind neighbors, highly permeable soils).							Livestock Operation Activities That may be Source of Risk? (List or "X")
	Concerns of Stakeholders: Is this issue a concern for.....						Are there potential site-specific characteristics that increase risk? (List or "X")	
	Myself?	Family and/or Employees?	Regulatory Agency?	Neighbors or Rural Community?	1	1		
Air Quality Issues								
Odors								___ Animal housing ___ Manure storage ___ Manure application ___ Mortality handling ___ Spoiled feed
Ammonia								
Hydrogen sulfide								
Greenhouse gases								
Dust, PM _{2.5} or PM ₁₀ PM (particulate matter)								___ Animal housing ___ Tillage operations ___ Farm vehicles ___ Feed processing ___ Irrigation engines
Other:								
Soil Quality								
Soil erosion								___ Tillage ___ Fertilizer application ___ Lack of soil conservation practices
Poor soil quality (pH, organic matter)								
Other:								

1 List additional stakeholders whose opinion is important to selecting environmental issues important to your farm. Other stakeholders might include customers or clientele, packing or processing plant, business partners, or integrator.

Handout 1. Identification of environmental issues significant to my operation *(continued)*

Potential Environmental Issues Step 1. Review potential issues. Step 2. Skip issues that do not apply. Step 5. When done, circle issues you judge significant.	Step 3. Place an "X" in a box if concern exists. Step 4. List site-specific risk factors important to this issue (such as downwind neighbors, highly permeable soils).						Are there potential site-specific characteristics that increase risk? (List or "X")	Livestock Operation Activities That may be Source of Risk? (List or "X")
	Concerns of Stakeholders: Is this issue a concern for.....							
	Myself?	Family and/or Employees?	Regulatory Agency?	Neighbors or Rural Community?				
Water Quality								
Nitrate leaching to groundwater								___ Fertilizer application
Nutrients (nitrogen and phosphorus) in surface water								___ Manure application ___ Manure storage ___ Manure spills ___ Animal confinement ___ Pastured animals
Pathogens in surface water								___ Animal housing ___ Manure storage
Pharmaceuticals (for example, antibiotics and hormones)								___ Mortality handling ___ Pasture or open lots
Pesticides								___ Storage facilities
Fuel and oil								___ Pesticide application
Other:								
Health and Safety Issues								
Biosecurity or bioterrorism?								
Animal health/comfort								___ Animal housing ___ Pasture
Worker health								___ Pesticide handling or land application.
Other:								

Handout 1. Identification of environmental issues significant to my operation *(continued)*

Potential Environmental Issues Step 1. Review potential issues. Step 2. Skip issues that do not apply. Step 5. When done, circle issues you judge significant.	Step 3. Place an "X" in a box if concern exists. Step 4. List site-specific risk factors important to this issue (such as downwind neighbors, highly permeable soils).						Are there potential site-specific characteristics that increase risk? (List or "X")	Livestock Operation Activities That may be Source of Risk? (List or "X")
	Concerns of Stakeholders: Is this issue a concern for.....							
	Myself?	Family and/or Employees?	Regulatory Agency?	Neighbors or Rural Community?				
Additional Environmental or Nuisance Issues								
Appearance of facility to visitors or passers-by								__ Animal housing __ Other farmstead facilities
Traffic nuisance								__ Manure application __ Feed/animal/crop shipping
Flies								__ Animal housing __ Manure storage __ Feed storage
Wildlife habitat								__ Crop production __ Tillage practices
Noxious weed invasion & control								
Other:								
Natural Resource Consumption								
Water quantity to meet demands								__ Irrigation __ Animal feeding
Fossil fuel use								__ Tillage and harvesting __ Irrigation
Electricity use								__ Animal housing __ Feed processing __ Irrigation
Other:								

Supplement 2. Environmental Policy Statement

Outcome

After completing Handouts 2a, 2b, and 2c and Work Sheet 2, the producer should have an Environmental Policy Statement that reflects the environmental commitments that he/she is making.

Tasks to be Completed with Each Producer

1. Read and discuss Fact Sheet 2 and/or other relevant information.
2. Review Handout 2a and develop stewardship commitments.
3. Review the example policy statements on Handout 2b.
4. Develop draft policy statement using Handout 2c.
5. When satisfied, write the farm or ranch policy statement on Work Sheet 2 in the *My EMS Workbook*.
6. Encourage them to revise the stewardship commitments and policy statement based on input from key personnel who did not attend the meeting.
7. Discuss ways they can communicate the policy statement to everyone involved in the operation and make it available to those outside of the operation.

Ideas for Group Discussion

- Are the commitments you made in this policy attainable? (possible) How would you demonstrate these commitments to others?
- How do you plan to share the policy with others within your operation?
- What external persons do you plan to share your policy with? How?
- How do your policy commitments relate to some of the major activities and job responsibilities on your operation? (What does “pollution prevention” mean to the person balancing rations, hauling manure, or applying chemicals?)

What Else is Needed to Reach ISO 14001?

In addition to the pollution prevention, regulatory compliance, and continual improvement commitments, the ISO 14001 standard specifies that a policy statement must include a commitment to other requirements to which the organization subscribes (such as organic certification or an industry program). This requirement can be added to the policy if looking toward ISO 14001 registration.

Contractors or suppliers of products or services related to significant issues (possibly chemical/fertilizer dealer, crop consultant, veterinarian, lagoon pumping contractor) should receive a copy of the policy statement. It is important that all of these people have access to the policy statement and that some time is set aside to talk with them about how the policy commitments specifically relate to their job responsibilities.

Handout 2a. Example Stewardship Commitments

These examples are provided to stimulate ideas for commitments to include in your own Environmental Policy Statement. Edit these or create new ones that best fit your operation. At a minimum, you need commitments to regulatory compliance, pollution prevention, and continual improvement.

Examples of General Stewardship Commitments

We are committed to...

- “Being a profitable and responsible operation that provides jobs and contributes in positive ways to our local community.”
- “Being recognized as a leader in environmental management by other producers.”
- “Recognizing that our farm exists within a community and our activities can affect the quality of life for others in that community.”
- “Providing the best possible housing and care for our livestock.”
- “Safeguarding the health and safety of those who live and work on our farm/ranch.”

Examples of Regulatory Compliance Commitments

We are committed to...

- “Remaining informed and in compliance with all pertinent environmental regulations.”
- “Meeting or exceeding environmental regulations that apply to our operation.”

Examples of Pollution Prevention Commitments:

We are committed to...

- “Preventing discharge of potentially harmful materials into the soil, water, air, or other resources.”
- “Efficient management of nutrients, including those that enter, leave, and are recycled within the system.”
- “Reducing the amount of inputs needed to make our product (including energy, fuel, feed nutrients, pesticides).”
- “Recycling and reusing within the system as much as possible.”
- “Properly managing manure as a valuable source of plant nutrients, desirable soil amendment, and a means for recycling and sequestering carbon in the soil.”
- “Minimizing soil erosion through the best available management practices.”

Examples of Continual Improvement Commitments:

We are committed to...

- “Regular reviews of environmental performance and identifying solutions for improvement.”
- “Developing or maintaining records that provide useful data for tracking environmental performance and profitability.”
- “Seeking opportunities to increase my environmental knowledge and awareness.”

Handout 2b. Example Environmental Policy Statements

Possible topics to consider:

Farm or ranch description and purpose?

Pigs Ear Farms is a family-owned pork production farm that raises wean-to-finish pigs for the purpose of producing premium quality, lean meat products. This father and son operation annually raises about 15,000 animals, relying on animal-friendly and environmentally-friendly production practices.

Environmental issues significant to the farm or ranch? (from Handout 1)

Pigs Ear Farms will focus on addressing nutrient management and odor issues. These priorities are based on current regulations and our desire to maintain the quality of life in our community.

Stewardship commitments? (from Handout 2a)

The farm is permitted under Nebraska's DEQ waste control regulations and is inspected annually for compliance. We will work to remain informed and in compliance with applicable environmental regulations. We are committed to preventing discharge of potentially harmful materials into the environment, minimizing our impact on neighbors, and to participating in community activities.

By annually reviewing our performance, we strive to improve our environmental, increase profitability, and improve on our community acceptance.

Signature: _____ *Date:* _____

Handout 2b. Example Environmental Policy Statements (continued)

Example

Chicken Little Farms considers being a good neighbor and responsible community citizen a high priority and actively participates in local industry, civic, and church activities. Chicken Little Farms produces poultry in an environmentally-responsible manner by using the best available practices, materials, equipment, and technologies. Specifically, we are committed to compliance with applicable environmental laws and regulations, proactive management of animal and crop health, efficient management of nutrients within the cropping system, enhancing and protecting wildlife habitats, and periodic reviews of our operation and associated environmental risks to identify improvement opportunities.

Example

Glacial Valley Farm is a family-owned-and-operated dairy and crop farm consisting of 250 dairy cattle and 450 acres located in south central Wisconsin. We believe that earth exists not only for those of use who currently live on it but also for our descendants. We recognize that our farming activities are deeply related to the environment. We acknowledge our responsibility as stewards of the land and strive to contribute to the quality of life in our neighborhood and community through our business. We will encourage environmental awareness among our family members, employees, and business partners. We are committed to compliance with all relevant environmental rules and regulations. We will research, implement, and promote pollution prevention and waste minimization practices. We will monitor our business and environmental practices for opportunities to continually improve our environmental impact.

Example

Beautiful Bossy Ranch is a certified, organic producer of high-quality beef marketed directly to our customers. We began this venture in 1993 with a desire to improve our quality of life, environmental impact, and profitability. We strive to be recognized as a leader in environmental management by other producers and our local community. We are committed to complying with all pertinent environmental laws and regulations and to the certified organic standards set forth by the Organic Beef Association. We are committed to protecting our natural resources by eliminating the use of chemical inputs and reusing and recycling materials wherever possible. We are constantly looking for ways to improve our business and environmental practices and will strive to educate ourselves as better ways to raise and process our product are discovered.

Handout 2c. Draft Environmental Policy Statement

Directions: Use this page to draft your policy statement. When satisfied, copy your policy to Work Sheet 2 in the My EMS Workbook.

Possible topics:

Description and purpose of farm or ranch?

Environmental issues significant to the farm or ranch? (from Handout 1)

Stewardship commitments (from Handout 2a)

Signature: _____ Date: _____

Plan

Purpose

Many livestock and poultry producers already have environmental plans in place. The support provided to producers usually focuses on the technical issues and details involved in developing that plan. An EMS additionally focuses on “process” steps to ensure implementation, maintenance, and improvement of the plan. This workbook will assist in applying the EMS process to existing technical plans as well as provide a framework for new plans you may develop. Figure 1 illustrates how an EMS can add pieces that are often missing from the puzzle (see items in italics).

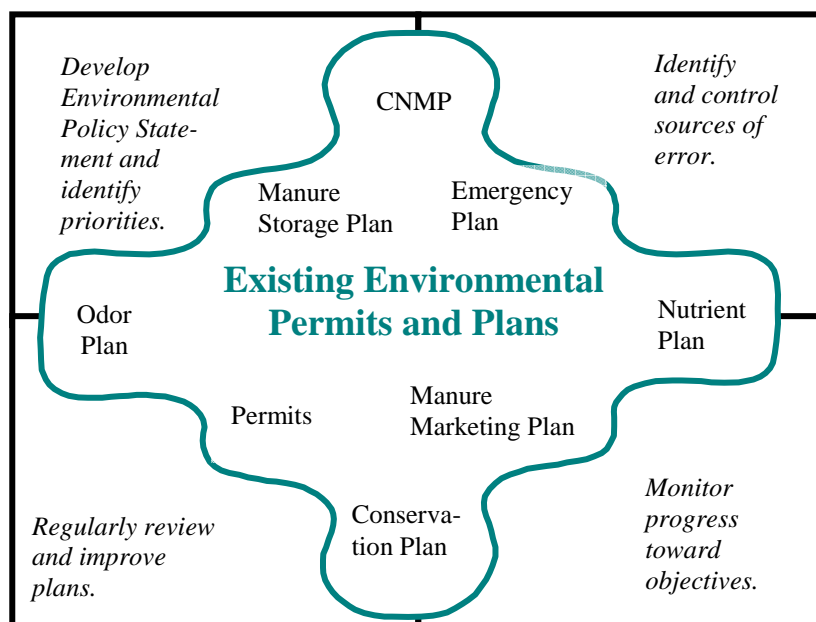


Figure 1. The EMS puzzle. Many existing environmental plans require some additional process steps to ensure successful on-farm implementation of a plan.

Outcome

By the conclusion of this “Plan” section, you will have facilitated:

- The assignment of important communication-related tasks to key personnel in the operation.
- A summary of environmental efforts related to each of their significant issues and the selection of those that are priorities.
- Targeted environmental assessments of their operation.
- The development of at least one stewardship plan.

Supplement 3. Communications

Outcome

After completing Handout 3 and Work Sheet 3, producers will have designated internal communication responsibilities to one or more key personnel and developed a plan for maintaining or improving external communications.

Tasks to be Completed with Each Producer

1. Read and discuss Fact Sheet 3 and/or other relevant information.
2. Complete Handout 3.
3. Complete Work Sheet 3. Encourage them to edit the listed responsibilities or add additional items as needed.
4. Encourage them to discuss Work Sheet 3 with key personnel not present at the meeting and revise based on that input.

Ideas for Group Discussion

- What are the roles/responsibilities of those involved on the farm/ranch? (Would they agree with that job description?)
- How would you like your farm/ranch to be viewed by neighbors, the local community, customers, regulators, or other important groups outside of the operation? Do you think that is how they view your operation now?
- If you drive onto someone else's property, you probably form a judgment about their operation within a few minutes. What creates a good impression? What makes a bad impression?

What Else is Needed to Reach ISO 14001?

To comply with the ISO 14001 standard, an organization must establish and maintain a procedure for receiving, documenting, and responding to relevant communication from external interested persons. An external communication log that briefly describes the nature and date of the (environmentally-related) communication (complaint, tour request, inquiry) as well as a notation about the response, follow-up action, and date would serve this purpose. An example external communication log is located in the Sample Record-Keeping Forms packet.

Handout 3. External Communications

Directions: Read through the following ideas for communications, note those that you already do, and select items that you plan to implement as part of your external communications plan. To fit your situation, edit or add additional items as needed.

Do we currently....			If no, do you plan to implement this?			Planned Date to Start and Notes on Success of Effort
EMS-Related Communications						
Share the environmental policy with interested parties? (Work Sheet 2)	Yes	No	Yes	No		
Share stewardship plan with interested parties? (Work Sheet 6)	Yes	No	Yes	No		
Share successes or previously implemented environmental improvements such as (fill in your successes):						
a.	Yes	No	Yes	No		
b.	Yes	No	Yes	No		
c.	Yes	No	Yes	No		
Involve external people in the development and/or review of any portion of the EMS, especially significant environmental issues (Work Sheet 1)?	Yes	No	Yes	No		
Other:	Yes	No	Yes	No		
Good Neighbor Relations						
Respond to complaints in a timely manner?	Yes	No	Yes	No		
Respond face-to-face if at all possible?	Yes	No	Yes	No		
Give neighbors appropriate contact information in case they have a complaint?	Yes	No	Yes	No		
Notify neighbors in advance of potentially odorous activities (land application)?	Yes	No	Yes	No		
Ask neighbors to track odors and other nuisances to determine which farm activities are most likely to generate complaints and/or where controls may be needed?	Yes	No	Yes	No		
Offer tours to interested individuals, groups, or students?	Yes	No	Yes	No		
Respond to tour requests, inquiries, or other questions in a timely manner?	Yes	No	Yes	No		
Regularly make an effort to reach out to neighbors and ask about (and listen to) their concerns?	Yes	No	Yes	No		
Train employees in how to greet visitors?	Yes	No	Yes	No		

Handout 3. External Communications *(continued)*

Offer a newsletter, fact sheet, or similar communication detailing the farm's environmental management and other pertinent information to neighbors, civic leaders, or other interested persons?	Yes	No	Yes	No	
Provide visitors with opportunities for viewing livestock (viewing windows or platforms) without compromising biosecurity or visitor safety.	Yes	No	Yes	No	
Other:	Yes	No	Yes	No	
Farm Appearance					
Have a well-kept sign along the road or other visible location with the farm name and any other relevant information?	Yes	No	Yes	No	
Have well-kept signs directing visitors to the main office?	Yes	No	Yes	No	
Regularly mow lawn and weedy areas?	Yes	No	Yes	No	
Keep the site free of scattered junk and miscellaneous equipment?	Yes	No	Yes	No	
Maintain building appearance with regular painting and other necessary maintenance?	Yes	No	Yes	No	
Landscape around the house, farmstead/headquarters, or other buildings?	Yes	No	Yes	No	
Have an enclosed mortality pick-up area or otherwise screen mortalities from public view?	Yes	No	Yes	No	
Screen manure storage areas or open lots from public view?	Yes	No	Yes	No	
Other:	Yes	No	Yes	No	
Citizenship and Community Involvement					
Support or participate in community organizations or volunteer efforts?	Yes	No	Yes	No	
Encourage employees to be active in civic organizations or volunteer efforts?	Yes	No	Yes	No	
Sponsor or contribute to youth or school events and fundraisers?	Yes	No	Yes	No	
Support local businesses whenever possible?	Yes	No	Yes	No	
Other:	Yes	No	Yes	No	

Supplement 4. What are My Priorities?

Outcome

After completing Handouts 4a and 4b (optional) and Work Sheet 4, producers will have recognized their legal requirements and summarized environmental efforts already undertaken (or those recognized as necessary but not started yet). They will also have selected at least one priority that will be followed through the rest of the workbook.

Tasks to be Completed by Each Producer

1. Read and discuss Fact Sheet 4 and/or other relevant information.
2. Complete “Handout 4a. Common Legal Requirements that Apply to Agriculture” and (optional) “Handout 4b. Do I Need an NPDES Permit?”
3. Complete Work Sheet 4 in the *My EMS Workbook*.
4. Review the items listed on Work Sheet 4 and decide which are priorities. A producer needs to use their judgment when defining a priority. It could be a single item listed in a box, all items listed in a box, a group of boxes, a row, a column, or any other grouping that makes sense. If they feel that items are closely related and that the same or similar actions could address them, then it makes sense to group them together as a single priority. Have them circle or somehow distinguish their groupings on Work Sheet 4.
5. Select at least one priority they feel is the most critical to their operation. They will be asked to follow that priority through the rest of the workbook. As they continue their EMS process into the future, they will include more priorities (as their time and resources allow).

Ideas for Group Discussion

- What resources do you use to learn about new or proposed regulations?
- Do you believe your EMS planning efforts can help you better target your efforts to take advantage of cost share or incentive programs? How?
- After summarizing your existing efforts on Work Sheet 4, did you discover any that were more closely related than you thought?
- Do you have to address all of your priorities at once? (No, your commitment to continual improvement involves selecting the most important, addressing it, and then moving on to the next priority).

What Else is Needed to Reach ISO 14001?

ISO 14001 specifies that an organization develop and maintain a procedure to identify legal and other (industry codes of practice, organic certification) requirements related to the environmental aspects of the organization. Regularly using Handout 4 (visiting the listed websites for updated information) or similar resources can be part of the efforts to stay current. Producer should add a paragraph describing their efforts and who is responsible somewhere in their *My EMS Workbook*.

Handout 4a. Common Legal Requirements That Apply to Agriculture

Directions: Review these regulatory compliance issues for those that may apply to your operation.

Sources of Information on Multiple Regulations

- US EPA Ag Compliance Assistance Center--<http://epa.gov/agriculture>
- EPA Animal Feeding Operation Virtual Center--<http://cfpub.epa.gov/npdes/afo/virtualcenter.cfm>
- Livestock and Poultry Environmental Stewardship CAFO Fact Sheets--<http://www.lpes.org/CAFO.html>
- Livestock and Poultry Environmental Stewardship (LPES) Curriculum--<http://www.lpes.org>

Regulatory Program	Who does it generally apply to?	Does it apply to me?	If Unsure or For More Information
National Pollution Discharge Elimination System (NPDES) Permit	Many livestock and poultry operations need to maintain an NPDES permit and successfully implement the appropriate Effluent Limitation Guidelines and nine-point nutrient management plan.	Yes No Unsure	--LPES CAFO Fact Sheet #2 at http://www.lpes.org/cafo/02FS_Permit.pdf --“Handout 4b. Do I Need an NPDES Permit?” -- http://cfpub.epa.gov/npdes/afo/virtualcenter.cfm
Clean Air Acts-administered by U.S. EPA	EPA identifies major sources for air pollution as those with emissions of 100 tons/year for several routine air pollutants and 10 tons/year for hazardous air pollutants. Suspended particulate matter smaller than 10 and 2.5 microns (PM ₁₀ & PM _{2.5}) could be applied to livestock facilities. “Major sources” are required to maintain a federal operating permit.	Yes No Unsure	LPES Curriculum Lesson 42. Controlling Dust & Odors
Comprehensive Environmental Response Compensation and Liability Act (CERCLA)	CERCLA originally targeted the release of hazardous pollutants resulting from Superfund sites. Recent court actions have forced a broader interpretation. Livestock facilities emitting more than 100 pounds of ammonia, hydrogen sulfide, or volatile organic compounds (per day) are subject to the CERCLA.	Yes No Unsure	http://www.epa.gov/superfund/action/law/cercla.htm
Emergency Planning and Community Right-to-Know Act (EPCRA)	EPCRA establishes requirements regarding emergency planning and reporting thresholds for hazardous and toxic chemicals. Facilities that store or release chemicals above the threshold amounts must comply with storage, emergency, & reporting requirements.	Yes No Unsure	www.epa.gov/ceppo

Handout 4a. Common Legal Requirements That Apply to Agriculture *(continued)*

Oil pollution prevention	The Oil Pollution Prevention program applies to non-transportation-related facilities with a total aboveground oil storage <i>capacity</i> of 1,320 gallons or greater (regardless if storage is filled to capacity) or below ground capacity greater than 42,000 gallons.	Yes No Unsure	http://www.epa.gov/oilspill/spcc.htm
State CAFO regulations	Most states have the authority to implement the CAFO regulations and issue the NPDES permits. Some states have expanded their NPDES program to address additional issues (for example, groundwater quality) or set stricter rules for surface water.	Yes No Unsure	Find your state regulatory agency: http://cfpub.epa.gov/npdes/afv/virtualcenter.cfm
State air pollution regulations	States have the authority to regulate air pollutants not addressed under USEPA Clean Air Act regulations or set maximum concentrations or emission rates at lower levels. Some states have chosen to regulate hydrogen sulfide or ammonia at levels that will affect animal feeding operations.	Yes No Unsure	Find your state regulatory agency: http://www.epa.gov/epahome/state.htm
Federal Insecticide, Fungicide, and Rodenticide Act	Operations that purchase or apply restricted-use pesticides need to obtain certification and keep records on those pesticides.	Yes No Unsure	Your local Cooperative Extension Service
Local zoning requirements	Existing operations are usually grandfathered into rules, but if you plan to build new, expand, or transfer ownership, then you should check with county zoning administrators to determine if a permit is required	Yes No Unsure	County Planning/Zoning Office
Soil and Water Conservation District programs	Your local Soil and Water Conservation District may have implemented wellhead protection programs, groundwater management areas, or other programs that make requirements of producers within the specified area.	Yes No Unsure	Your local Soil and Water Conservation District or NRCS office
Other:		Yes No Unsure	

Handout 4b. Do I need an NPDES permit?

(current as of June 2005)

Step 1. Am I an AFO?

Confinement-based systems
 Confinement systems include open lots (typically little or no vegetation) and roofed animal housing or barns where animals are commonly housed or fed.

Does livestock or poultry operation house or feed animals in a confined area for more than 45 days in any 12-month period?

Yes

No

Does the animal confinement sustain any crops, pasture, or residue when animals are confined?

No

Yes

Not an AFO. No NPDES permit

Step 2. Am I a CAFO (concentrated AFO)? Check the number of animals in your AFO.

Species	Column A: Large	Column B: Medium	Column C: Small
Beef cattle	1,000 or more	300 to 999	less than 300
Veal	1,000 or more	300 to 999	less than 300
Mature dairy cattle	700 or more	200 to 699	less than 200
Dairy heifers	1,000 or more	300 to 999	less than 300
Swine (55 lbs or more)	2,500 or more	750 to 2,499	less than 750
Swine (less than 55 lbs)	10,000 or more	3,000 to 9,999	less than 3,000
Turkeys	55,000 or more	16,500 to 54,999	less than 16,500
Laying hens or broilers ¹	30,000 or more	9,000 to 29,999	less than 9,000
Laying hens ²	82,000 or more	25,000 to 81,999	less than 25,000
Chickens except laying hens	125,000 or more	37,500 to 124,999	less than 37,500
Ducks ¹	5,000 or more	1,500 to 4,999	less than 1,500
Ducks ²	30,000 or more	10,000 to 29,999	less than 10,000
Sheep or lambs	10,000 or more	3,000 to 9,999	less than 3,000
Horses	500 or more	150 to 499	less than 150

Step 3. At least one check in Column A:
 Animal operation is a **Large CAFO**. Large CAFOs have two options:

Demonstrate that CAFO has no potential to discharge.

NPDES permit is required.
 Producer must submit application.

Step 3. At least one check in Column B and no checks in Column A:
Animal operation is a Medium AFO and is defined as a CAFO if:
 1) Animals are in contact with surface water running through the area where animals are confined.
 OR
 2) A man-made ditch or pipe carries manure or wastewater from animal housing or feeding area to surface water?

OR

3) Regulatory Authority has determined that this operation is contributing significant pollutants to

Yes

AND

No

No NPDES permit is required.

1 Only applicable to poultry operations with liquid manure systems
 2 Other than a liquid manure system

Supplement 5. What Risks are Significant?

Outcome

After completing Handout 5, producers will have selected a resource(s) for an environmental assessment of their operation. After conducting the assessment, producers will determine if existing activities are adequate and potential improvements to be made.

Some Recommendations about the Assessment Process

Although many producers favored a self-assessment, they did not tend to follow through. Many said they got distracted when they found something that needed “fixing” or they just did not take the time to do it. An approach that was accepted well was for a non-threatening (non-regulatory) person to conduct the assessment with them (at their farm or ranch). Confidentiality must be ensured, either by leaving all written and electronic copies of the assessment and summary with the producer or by somehow coding the information so that individual identities cannot be traced.

The assessment process and the tools used can vary widely. Handout 5 includes many excellent written risk assessment tools (Farm*A*Syst and similar tools), but an assessment can be as simple as gathering the key personnel (and/or an outside person) and walking through or brainstorming about the activities with the greatest potential environmental risk. Existing plans (conservation plan, comprehensive nutrient management plan) often include information related to environmental risks and/or potential improvements for the operation. As much as possible, relevant information in these existing plans should be used in the assessment process. A process map (diagramming the system in flowchart form) is also often used to visualize potential impacts that the system may have on the environment, including the consumption of inputs.

Tasks to be Completed with Each Producer

1. Read and discuss Fact Sheet 5 and/or other relevant information.
2. Review Handout 5 and select the assessment resources/process they wish to use (or review assessment resources/process you pre-selected for the program). If you or other resource people will be assisting them with their assessment, set up a schedule (or appointments) for the assessment.
3. Complete the assessment (preferably onsite with key personnel and/or a third party). Prepare a summary of the assessment, including “Improvements that Could be Made” and “Good practices to Continue.” Other headings could be added as needed. See the Example packet for an example of an assessment report.
4. Encourage them to fill out “Work Sheet 5. Assessments Completed,” and file the completed assessment and summary for future reference.

Ideas for Group Discussion

- What are the advantages (and disadvantages) of including other people (employees, family extension agents, NRCS, soil and water district personnel) in your assessment process?
- Does “improvement” always mean expensive or time-consuming? (Can an improvement also be doing an activity more regularly or doing a better job of documenting or recording certain activities?)

What Else is Needed to Reach ISO 14001?

See “What Else is Needed to Reach ISO 14001?” section for Supplement 1.

Handout 5. Potential Resources for Environmental Assessments

Directions: Select the issues you wish to review further and then look for resources that apply to your operation.

Environmental Issues	Person in Charge and Deadline	Risk Assessments and Information Resources (Not all listed resources will apply to your operation—you may also be aware of additional resources and can substitute those.)
Sources for multiple environmental issues		<p>Find your state Farm*A*Syst materials by contacting your county extension office or go to http://www.uwex.edu/farmasyst/ and click on “Resources.” (Many of the issues listed on this handout probably have an associated Farm*A*Syst Work Sheet for your state.)</p> <p>Livestock and Poultry Environmental Stewardship (LPES) Curriculum--http://lpes.org</p>
Air Quality Issues		
Odors		<p>Partners for Livestock EMS assessments: Land Application--http://ems.unl.edu/A_landapp.doc Manure Storage--http://ems.unl.edu/A_manurestor.doc Farmstead Manure and Related Issues— http://ems.unl.edu/A_farm1.doc</p> <p>Livestock and Poultry Env. Stewardship (LPES) Curriculum Assessments-- http://danpatch.ecn.purdue.edu/~epados/pams/src/curriculum.htm</p>
Ammonia		<p>“Practices to Reduce Ammonia from Livestock Operations,” Iowa State University-- http://extension.iastate.edu/Publications/PM1971A.pdf and related flowchart http://extension.iastate.edu/Publications/PM1971B.pdf</p>
Hydrogen sulfide		<p>“Practices to Reduce Hydrogen Sulfide from Livestock Operations,” Iowa State University-- http://extension.iastate.edu/Publications/PM1972A.pdf and related flowchart http://extension.iastate.edu/Publications/PM1972B.pdf</p>
Greenhouse gases		<p>EPA Ruminant Livestock FAQ--http://www.epa.gov/rlep/faq.html</p>
Dust or particulate matter		<p>“Practices to Reduce Dust and Particulates from Livestock Operations,” Iowa State University-- http://extension.iastate.edu/Publications/PM1973A.pdf and related flowchart http://extension.iastate.edu/Publications/PM1973B.pdf</p>
Other:		

Handout 5. Potential Resources for Environmental Assessments (continued)

Soil Quality		
Soil erosion		<p>Ag Environmental Management. (AEM) “Soil Mgmt,” “Pasture Mgmt”--http://www.agmkt.state.ny.us/SoilWater/AEM/AEMWorkSheetTOC.html</p> <p>University of Nebraska “Effects of Ag Runoff on Nebraska Water Quality” (information applies to many different locations)-- http://ianrpubs.unl.edu/water/g586.htm</p>
Poor soil quality (pH, organic matter, compaction, etc.)		<p>USDA Soil Quality Assessment (also includes rangeland soil quality topics)--http://soils.usda.gov/sqi/soil_quality/assessment/index.html</p> <p>Livestock and Poultry Environmental Stewardship (LPES) Curriculum Assessments—Lesson 30. Soils Characteristics (suitability of soils for manure application)-- http://danpatch.ecn.purdue.edu/~epados/pams/quizzes/lesson30app1.htm</p> <p>Ag Environmental Management. (AEM) Work Sheets “Soil Management”-- http://www.agmkt.state.ny.us/SoilWater/AEM/AEMWorkSheetTOC.html</p>
Other:		
Water Quality Issues		
Nitrate leaching to groundwater		<p>Partners for Livestock EMS Assessments Farm Nutrient Balance--http://ems.unl.edu/A_nutrbal.doc Farmstead Manure and Related Issues— http://ems.unl.edu/A_farm1.doc Farmstead Multimedia Issues--http://ems.unl.edu/A_farm2.doc Land Application--http://ems.unl.edu/A_landapp.doc</p> <p>Livestock and Poultry Environmental Stewardship (LPES) Curriculum Assessments-- http://danpatch.ecn.purdue.edu/~epados/pams/src/curriculum.htm</p> <p>Agricultural Environmental Management (AEM) Work Sheets-- http://www.agmkt.state.ny.us/SoilWater/AEM/AEMWorkSheetTOC.html</p> <p>U of Wisconsin assessments for dairy “Nutrient Management and Manure Application Practices,” “Drinking Water Well Condition”-- http://www.uwex.edu/AgEMS/diary/wisems/my_ems.htm</p>

Handout 5. Potential Resources for Environmental Assessments (continued)

Water Quality Issues (continued)		
Pathogens in surface water		<p>Livestock and Poultry Environmental Stewardship (LPES) Curriculum Assessments, Lesson 51. Mortality Management-- http://danpatch.ecn.purdue.edu/~epados/pams/quizzes/lesson51app1.htm</p> <p>Agricultural Environmental Management (AEM) Work Sheets-- “Waterborne Pathogens,” “Manure Management”-- http://www.agmkt.state.ny.us/SoilWater/AEM/AEMWorkSheetTOC.html</p>
Pharmaceuticals (for example, antibiotics and hormones)		<p>Partners for Livestock EMS Farmstead Multimedia Issues--http://ems.unl.edu/A_farm2.doc</p>
Pesticides		<p>Partners for Livestock EMS (final URL pending) Farmstead Multimedia Issues--http://ems.unl.edu/A_farm2.doc</p> <p>Agricultural Environmental Management (AEM) Work Sheets, “Pesticide Use,” “Pesticide Storage, Mixing, and Loading”-- http://www.agmkt.state.ny.us/SoilWater/AEM/AEMWorkSheetTOC.html</p> <p>University of Nebraska “Best Management Practices for Ag Pesticides to Protect Water Resources”-- http://ianrpubs.unl.edu/g1182.htm OR “Spray Drift of Pesticides”-- http://ianrpubs.unl.edu/pesticide/g1001.htm</p>
Fuel and oil		<p>Partners for Livestock EMS Farmstead Multimedia issues--http://ems.unl.edu/A_farm2.doc</p> <p>Agricultural Environmental Management (AEM) “Petroleum Product Storage”--http://www.agmkt.state.ny.us/SoilWater/AEM/AEMWorkSheetTOC.html</p>

Handout 5. Potential Resources for Environmental Assessments (continued)

Water Quality Issues (continued)		
Nutrients (nitrogen and phosphorus) in surface water		<p>Partners for Livestock EMS Assessments Farm Nutrient Balance--http://ems.unl.edu/A_nutrbal.doc Manure Storage--http://ems.unl.edu/A_manurestor.doc Land Application--http://ems.unl.edu/A_landapp.doc Farmstead Manure and Related Issues— http://ems.unl.edu/A_farm1.doc Farmstead Multimedia Issues--http://ems.unl.edu/A_farm2.doc Rangeland and Pastureland--http://ems.unl.edu/A_range.doc</p> <p>Livestock and Poultry Environmental Stewardship Curriculum (LPES) Assessments-- http://danpatch.ecn.purdue.edu/~epados/pams/src/curriculum.htm</p> <p>Agricultural Environmental Management (AEM) Work Sheets-- http://www.agmkt.state.ny.us/SoilWater/AEM/AEMWorkSheetTOC.html</p> <p>University of Wisconsin assessments for dairy “Manure Storage/Barnyard & Feedlot Management,” Nutrient Management,” Manure Application Practices”-- http://www.uwex.edu/AgEMS/dairy/wisems/my_ems.htm</p>
Other:		
Health and Safety Issues		
Biosecurity or Bioterrorism		<p>Biosecurity Resources, Pennsylvania State University (multiple species info)--http://vetextension.psu.edu/Biosecurity/BioMain.htm</p> <p>“Biosecurity Basics for Cattle Operations and Good Management Practices (GMP) for Controlling Infectious Diseases,” University of Nebraska--http://ianrpubs.unl.edu/animaldisease/g1411.htm</p> <p>Biosecurity (for poultry producers), Virginia Tech Cooperative Extension--http://poultryems.ag.vt.edu/Assessment/Biosecurity.doc</p> <p>Integrator-supplied manuals</p> <p>“Test Your Farm’s Biosecurity” (dairy cattle focus), Cornell University--http://nyschap.vet.cornell.edu/factsheet/self-assessment.pdf</p> <p>“Biosecurity Guide for Pork Producers,” National Pork Board-- http://www.porkboard.org/securityBiosecurity/biosecurity%20book.pdf</p>

Handout 5. Potential Resources for Environmental Assessments (continued)

Health and Safety Issues (continued)		
Animal health/- comfort		
Worker health		National Ag Safety Database-- http://www.cdc.gov/nasd/
Other:		
Additional Environmental or Nuisance Issues		
Appearance of facility to visitors or passers-by		Agricultural Environmental Management (AEM) “Ag & the Community”-- http://www.agmkt.state.ny.us/SoilWater/AEM/AEMWork SheetTOC.html
Traffic		
Flies		Pests (for dry litter poultry producers), Virginia Tech Cooperative Extension University of Wisconsin online assessments “Dairy Pest Management”-- http://www.uwex.edu/AgEMS/dairy/wisems/my_ems.htm
Wildlife habitat		University of Wisconsin “Grassland Birds: Fostering Habitats Using Rotational Grazing”-- http://cecommerce.uwex.edu/pdfs/A3613.PDF
Noxious weed invasion and control		Contact your county weed superintendent or county extension office for a listing and control recommendations for noxious weeds in your state/county.
Other:		
Natural Resource Consumption		
Water quantity to meet demands		Waterwise-- http://esc.orst.edu/waterwise/ Oregon Cooperative Extension University of Nebraska “Irrigating for Maximum Economic Return with Limited Water”-- http://ianrpubs.unl.edu/water/g1422.htm University of Wisconsin “Conserving Water in the Milking Center”-- http://cecommerce.uwex.edu/pdfs/A3613.PDF
Fossil fuel use		
Electricity use		University of Wisconsin Agricultural Energy Series-- http://cecommerce.uwex.edu/showcat.asp?id=7 Go to http://www.focusonenergy.org/page.jsp?pageId=8 and click on “Farm Assessment Toolkit.” To access this tool, you will need to create a free web account.
Other		

Handout 5. Potential Resources for Environmental Assessments (continued)

Other		
Waste disposal (items other than manure) Household and shop wastes, solid wastes, etc.		<p>Agricultural Environmental Management (AEM) Waste Disposal-- http://www.agmkt.state.ny.us/SoilWater/AEM/AEMWorkSheetTOC.html</p> <p>University of Wisconsin Waste Management series-- http://cecommerce.uwex.edu/showcat.asp?id=110</p>

Additional Assessment Resources

On-Farm Assessment and Environmental Review Program (OFAER) is a no-cost, third-party assessment of your operation--<http://www.emsllc.org/OFAERPIntroduction.asp>

Utah State University Agriculture EMS includes a process mapping tool for manure handling--
<http://aems.aste.usu.edu/>

North Carolina Division of Pollution Prevention aspects/impacts manager (swine focus)--
<http://xapps.enr.state.nc.us/survey/index.jsp> (You will need to create a login to access this website.)

University of Georgia environmental assessment resources--http://www.agp2.org/env_assess/

Ontario Environmental Farm Plan is a farmer-driven, voluntary assessment program--
<http://www.gov.on.ca/OMAFRA/english/environment/index.html>

Stream and Riparian Area Management for livestock producers--
<http://www.homepage.montana.edu/~stream/>

Supplement 6. Stewardship Plans

Outcome

After completing a stewardship plan for a particular priority (selected from Work Sheet 4 in *My EMS Workbook*), producers will have defined an objective and selected one or more performance measures to monitor for that objective. They will also have a written list of actions to be taken (or a summary of an existing plan), including assignment of responsibilities and a deadline or frequency.

Tasks to be Completed with Each Producer

1. Read and discuss Fact Sheet 6 and/or other relevant information.
2. For each priority selected from Work Sheet 4, make a copy of “Work Sheet 6. Stewardship Plan” and list the priority or title of the plan in the space provided at the top.
3. Select an objective for the plan.
4. Select one or more performance measures that will be used to track progress toward the objective. “Handout 8. Stewardship Plan Fact Sheet” lists performance measures for some common plans.
5. List actions that will be taken to reach this objective, or summarize the actions part of an existing plan. The information gathered during the assessment in Exercise 5 should provide a great deal of help for this section. If more information is needed, the educator should assist in locating research results, extension publications, resource people, or other resources to assist producers in developing their plan. See Handout 6 for a list of resources that might be useful in the development of a stewardship plan.
6. Indicate if any legal requirements apply to this stewardship plan (see the “Legal Requirements” column of Work Sheet 4 or list others not already part of Work Sheet 4).
7. Assign responsibility for each activity. Also select a deadline for completion, or if it will be a reoccurring activity, decide how often it should be done.
8. Encourage producers to review their plan with key personnel who were not at the meeting and to make revisions based on that input.

Ideas for Group Discussion

- Producers often face similar problems or situations and may have novel ideas to share with the group to help others solve problems or come up with ideas. (Some educators in the Partners Project included a visit to one or more farms/ranches that had made improvements to stimulate this type of idea sharing between producers.)
- Why are performance measures and documenting them such an important part of your plan? (Hint: They are a trigger to take action if measures are headed in the wrong direction. They also help show improvement or document change, which is especially important if producers are working with regulators to move into compliance.)

What Else is Needed to Reach ISO 14001?

No additional actions are necessary for this step.

Handout 6. Resources for Technical Support of Your EMS Plan

Livestock and Poultry Environmental Stewardship (LPES) Curriculum--<http://www.lpes.org>

Find your online state Cooperative Extension Publications library--
http://www.oznet.ksu.edu/library/other_st/other_st.htm

CSREES National Water Quality Database--<http://www.usawaterquality.org/>

MidWest Plan Service (MWPS)--<http://www.mwpshq.org>

Natural Resource, Engineering and Agriculture Service--<http://www.nraes.org>

Utah State University Agricultural EMS website--<http://aems.aste.usu.edu/>

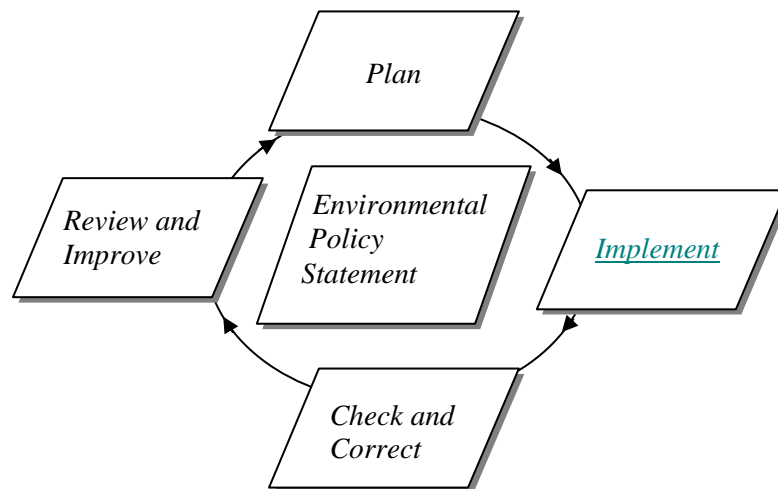
Local resources including:

- Land-Grant University Cooperative Extension
- USDA Natural Resources Conservation Service
- Crop consultant, veterinarian, other consultants
- Local soil and water conservation district

Implement

Purpose

After developing a plan, it is time to go out and make it happen! This section of the workbook will focus on the processes to be put into place that ensure everyone knows what they are expected to do, when to do it, and how to do it, ensuring that it gets done right.



Outcome

By the conclusion of this “Plan” section, you will have facilitated:

- Identification of the actions in a producer’s stewardship plans that are critical (most environmentally sensitive or carry the greatest legal liabilities).
- Development of controls to reduce potential errors as these activities are carried out.

Supplement 7-10. Training, Record Keeping, Standard Operating Procedures (SOPs), and Emergency Response Plans (ERPs)

Steps 7-10 are grouped together on this supplement because they are all potential ways to reduce errors in operations. They can be presented individually or as a group, but the fact that they are related should be noted.

Outcome

After reviewing Handouts 7-10 and completing Work Sheets 7-10 in *My EMS Workbook*, producers will have identified the most critical activities in their stewardship plan(s) and identified one or more methods they will use to control potential errors related to those activities. They will also have identified situations for which ERPs are necessary.

Tasks to be Completed with Each Producer

Before covering these topics with producers, you may wish to take some time to locate extension publications or other resources on procedures that are common SOPs (such as soil or manure sampling, calibrating a manure spreader) and have them available. The *Sample Record-Keeping Forms* packet should be reviewed so that you are familiar with the items contained in it. Producers can modify those forms for use on their operations.

1. Read and discuss Fact Sheet 7 and review Handout 7 (optional).
2. Review stewardship plan(s) and select activities for which training is needed. Complete Work Sheet 7 in *My EMS Workbook*.
3. Read and discuss Fact Sheet 8 and review Handout 8 for potential record-keeping suggestions.
4. Review stewardship plan(s) and decide which items will be part of the environmental records (especially look at your legal requirements and performance measures). Complete Work Sheet 8a and Work Sheet 8b in *My EMS Workbook*.
5. Read and discuss Fact Sheet 9 and Handout 9.
6. Discuss activities for which SOPs are already developed. Review stewardship plan(s) and select activities for which new SOPs will be developed. Complete Work Sheet 9 in *My EMS Workbook*.
7. Read and discuss Fact Sheet 10 and Handout 10.
8. Brainstorm situations for which producers already have ERPs and situations for which they will develop new ERPs (do not restrict this to activities listed on stewardship plans; consider all potential emergencies). Complete Work Sheet 10 in *My EMS Workbook*.
9. Encourage them to review Work Sheets 7-10 with key personnel who did not attend the meeting and revise them based on their input.
10. Encourage producers to carry out their training plan and to develop and maintain their environmental record-keeping system, SOPs, and ERPs as they indicated in the *EMS Work Sheets*. (Provide resources such as the *Sample Record-Keeping Forms*, SOP resources, or other examples/resources as needed to help make this process as easy as possible for them.)

Ideas for Group Discussion

- What situations do you already have ERPs for? What situations do you plan to develop ERPs for? Who do you share them with? Do you know where to find the ERPs?
- Do you already use SOPs? What SOPs do you plan to develop?
- What ideas have made your record-keeping easier or more accurate?

Supplement 7-10. Training, Record Keeping, Standard Operating Procedures (SOPs), and Emergency Response Plans (ERPs) (continued)

What Else is Needed to Reach ISO 14001?

Operations seeking ISO 14001 registration will also need to:

- Be certain that all persons doing critical tasks (those whose work might significantly impact the environment) are aware of the importance of conformance with the EMS plan, the significant impacts their work could have, the environmental benefits of improved performance, their responsibilities in achieving conformance with the EMS plan, and potential consequences of departure from procedures.
- Ensure that all documents are controlled (signed, dated), not just SOPs. (These materials discuss document control within the SOP topic rather than as a separate requirement of an EMS.)
- Keep records related to the calibration and maintenance of any monitoring equipment.

Handout 7. Training Log

Training Program	Date Completed	Staff Completing Training	Who Taught Program?	Time Involved, hrs

Handout 8. Stewardship Plan Fact Sheet

Plan	Potential SOPs	Potential Records	Potential Performance Measures
Nutrient management	Soil sampling Manure sampling Application equipment calibration In-season crop N status Setbacks and off-limits to manure application	Soil analysis Manure analysis Manure and fertilizer application rates and timing Results of P Index field review Crop yield In-season checks of crop nutrient status Application equipment inspection and maintenance log	Crop yield Soil P level Individual field nitrogen balance for single year Phosphorus balance summary (5-year average) P index
Manure storage management	Storage inspection Equipment and storage maintenance Pump out procedures (including agitation)	Manure storage level Precipitation Pumping schedule Manure storage inspections Storage and pumping system inspections and maintenance log Groundwater monitoring data Livestock waste discharge reports and notification	Liquid level relative to critical pumping levels Number of spills Number of equipment or structure failures Were appropriate corrections made when inspections revealed unsatisfactory item?
Manure marketing or export	Product uniformity Hauling and stacking of manure on neighbor's property Land application	Scale receipts or estimates (number of loads or gallons) Individual(s) receiving manure Nutrient analysis of manure transferred to off-farm users	Total quantity of manure exported. Does actual manure nutrient transfer match planned transfer?
Odor control	Lagoon management Agitation of manure storage Maintenance of lagoon or storage covers Manure and feed cleanup and removal practices from animal housing Timing, site selection, and land application of manure	Producer record of odor complaints and associated response Record for neighbors to maintain on odor observations	Number of complaints received Farm appearance (recorded in photos or similar)
Comprehensive nutrient management plan	See all above	See all above	Whole Farm Nutrient Balance

Handout 9. Sample Standard Operating Procedure (SOP)

Sampling Manure for Nutrient Analysis (Open Feedlot)

Approved by: John Q. Owner

Date: October 2000

Revised: October 2002

Purpose

This procedure will ensure that manure samples provide the best possible nutrient testing results in order to determine how much nitrogen and phosphorus are being applied to crop fields when manure is spread. A poor sample will result in incorrectly calculating the amount of manure nutrients applied to fields.

1. Samples are to be taken whenever pens are scraped and manure removed for land application. The person taking the load out to the field is responsible for taking a sample of the manure before it is land-applied.
2. Get rubber gloves and a clean, five-gallon bucket from the scale shed. Put the gloves on.
3. Grab a handful of manure from a manure spreader after it has been loaded. Put the sample in the bucket.
4. Repeat #3 for every load.
Note: Two grab samples should be taken from each load if fewer than five loads will be removed from the lots.
5. Store the bucket on ice, and cover top with insulating materials (for example, crushed newspaper or an old blanket) between loads.
6. Mix the manure in the bucket and break up lumps, either by hand or by using a garden trowel. Continue to stir until all of the samples are mixed completely.
7. Get a quart-sized, self-sealing (Ziploc) plastic bag. (If a larger bag is used, it should only be partially filled, or it will not fit into the mailing envelope.)
8. Fill the bag with manure from the bucket.
9. Using a permanent marker, write the farm name, your initials, and the date on the bag.
10. Empty the remaining manure from the bucket into the nearest pen or manure spreader.
11. Dispose of the gloves in the trash can and wash hands thoroughly.
12. Take the sample to the office manager.

This SOP is:

1. Available in the EMS manual located in the main office.
2. Posted in the scale shed.

Handout 10. Emergency Response Plan (ERP) Template

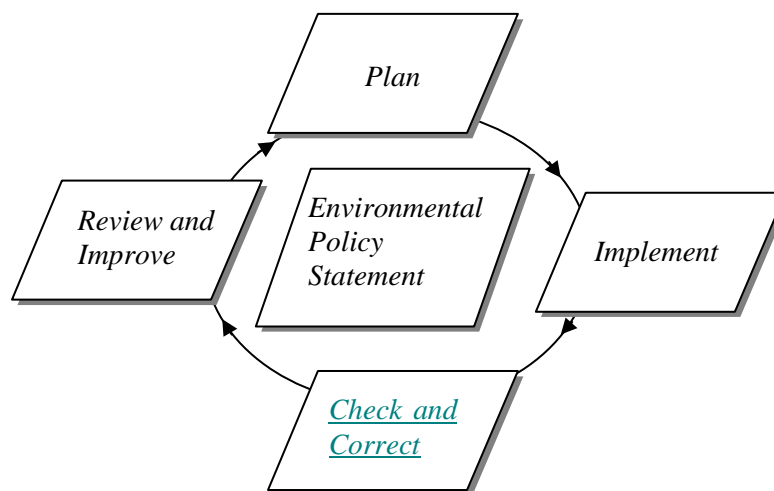
Farm Name and Location:		
Emergency Plan Name:		
Cause of Situation (check those that apply):		
<input type="checkbox"/> Power failure	<input type="checkbox"/> Storm/Extended wet period	<input type="checkbox"/> Accident
<input type="checkbox"/> Equipment failure:		
<input type="checkbox"/> Failure of berm or other facility component:		
<input type="checkbox"/> Other:		

In Case of an Emergency:		
1. Implement the following first response or containment steps:		
2. Assess the extent of the emergency and determine how much help is needed.		
3. Contact the farm's emergency response team leader:		
Name: _____	Phone: _____	
Name: _____	Phone: _____	
4. Give the team leader the following information:		
· Your name	· Farm identification	
· Description of emergency	· Estimate of the amounts, area covered, and distance traveled.	
· Has manure reached surface waters or major field drains?		
· Is there any obvious damage: employee injury, fish kill, or property damage?		
· What is currently in progress to contain situation?		
5. Available equipment/supplies for responding to emergency:		
<u>Equipment/Supplies</u>	<u>Contact Person</u>	<u>Phone Number</u>
_____	_____	_____
_____	_____	_____
6. Contacts to be made by farm's emergency response leader (discharge must be reported to NDEQ within 24 hrs.):		
<u>Organization</u>	<u>Contact Person</u>	<u>Phone Number</u>
NDEQ _____	_____	(402) 471-2186
_____	_____	_____
_____	_____	_____
7. Additional containment measures, corrective measures, or property restoration measures.		
8. Will written report be submitted to regulatory agency? <input type="checkbox"/> Yes <input type="checkbox"/> No		
(Some agencies require written reports to be filed within a specific period of time—check for your requirements.)		

Check and Correct

Purpose

Crop producers do not walk away from their newly planted crop until harvest. They monitor weeds, insects, and fertility to avoid situations that could damage yields. The same goes for your EMS. You defined your destination (Plan phase) and began working toward that objective (Implement phase). In the Check and Correct phase, you monitor the data that is collected and activities being done, trying to identify and correct problems as soon as possible.



Outcomes

After completing the “Check and Correct” section, you will have facilitated:

- A review of problem-solving processes.
- Planning the details of the audit procedure.

Supplement 11a. Are We Identifying and Addressing Problems? and 11b. Audit

Someone working on an EMS for their own internal benefit (functional EMS) could possibly do their audit at the same time as the management review (Supplement 12). Producers working toward registration or seeking external recognition from their EMS, should use the audit (done by someone within the operation or an outside person selected by the operation) to prepare for the audit that will be done by the certifying organization. Audit materials, resources, or other guidance from the certifying organization should be used with (or in place of) these materials.

Outcome

After completing Work Sheet 11, producers will have reviewed problem solving and planned the details of their audit.

Tasks to be Completed with Each Producer

1. Read and discuss Fact Sheets 11a and 11b.
2. Review Handouts 11a and 11b. File them for use when it is time to conduct an audit.
3. Fill out Work Sheet 11 in the *My EMS Workbook*.

Ideas for Group Discussion

- What are the advantages/disadvantages of someone else auditing your EMS?
- What are the characteristics you would look for in a good auditor? (Some hints: impartial, tactful, understands agriculture, thorough, and had auditor training)
- Why is it important to audit your EMS from time to time?

What Else is Needed to Reach ISO 14001?

To achieve conformance with the ISO 14001 standard, an operation would need to:

- Develop and maintain a written procedure for dealing with nonconformance that includes: identifying the cause, corrective actions needed, actions to prevent a recurrence, and recording changes to written procedures as a result of the incident. The documentation for an incident should be proportional. For example, a minor concern might be recorded in a “Corrective Action Log” that includes the above headings, while a large-scale investigation might have a great deal of related documentation.
- Self-declare conformance with the ISO 14001 standard or seek out an independent third party to verify their conformance. For more information, visit http://www.ansi.org/conformity_assessment/accreditation_programs/accreditation_ems.aspx?menuid=4 or <http://www.anab.org> and click on “CB” in the left column.

Handout 11a. Audit Checklist: Overall EMS Review

Purpose of the audit: Did we do what we said we would?

Directions: At least annually, use this work sheet or a substitute to audit the EMS. Each individual stewardship plan (Work Sheet 6) will be audited using Handout 11b. Edit questions to tailor the audit to your operation. The farm manager should use the Followup column to note actions taken or give an explanation about inaction. The completed Audit Checklist should be referenced during the management review (Handout 12). Then, file the completed audit checklist in your My EMS Workbook or in another location to access this information as needed.

Person(s) conducting the audit: _____ Date completed: _____

Questions to Consider	Observations Comments (by auditor)	Recommendations (by auditor)	Followup (by farm/ranch manager)
Significant Environmental Issues (Work Sheet 1)			
Does the operation maintain a current list of significant environmental issues?			
Other			
Policy Statement (Work Sheet 2):			
Do all farm/ranch staff have access to the policy statement?			
Do farm/ranch staff understand the policy statement and how it relates to their job responsibilities?			
Has the policy been shared with the (1) Public and (2) Relevant suppliers of services, products, and information?			
Other:			
Communication (Work Sheet 3)			
Are key personnel and those assigned specific responsibilities on Work Sheet 3 aware of and actively carrying out those responsibilities?			
Are new employees introduced to relevant components of EMS in a timely manner?			

Handout 11a. Audit Checklist: Overall EMS Review *(continued)*

Communication (Work Sheet 3) <i>(continued)</i>			
Are planned external communication activities being implemented as proposed?			
Other:			
Farm Priorities (Work Sheet 4)			
Is there an up-to-date summary of the operation's priorities, including legal requirements?			
Has an environmental regulatory agency conducted an inspection since last audit? Have all concerns been addressed?			
Other:			
Assessment of Farm/Ranch Activities (Work Sheet 5)			
Have all priorities been assessed to review adequacy of existing activities and identify potential improvements? How?			
Were all key personnel involved in the assessments (or allowed to review the results and give feedback)?			
Other:			
Stewardship Plan and Objectives (Work Sheet 6)			
<p>Note: For each copy of "Work Sheet 6. Stewardship Plan" and its associated objective(s), use a copy of "Handout 11b. Audit Checklist: Stewardship Plans and Objectives" to complete audits (at least annually). Not every plan and its associated objective will need to be audited at the same time or with the same frequency. Schedule the audits as they best fit with your production cycle and activities.</p>			
Training (Work Sheet 7 or a (optional) training log)			
Have all training needs been addressed?			
Other:			

Handout 11a. Audit Checklist: Overall EMS Review *(continued)*

Record Keeping/Inspections (Work Sheet 8)			
Are the planned inspections and records being implemented? Are records up to date, findable, readable, complete, and protected from loss?			
Are the records required by regulation being kept, reported, and retained as required?			
Are persons recording information aware of acceptable ranges and know what action to take to correct or prevent unacceptable performance?			
If unacceptable performance (or a trend toward unacceptable performance) occurred, was it noticed in a timely manner?			
Were appropriate actions taken to correct (or prevent) the problem (and its root cause)?			
If changes needed to be made, were they made and communicated to those affected in a reasonable timeframe?			
Did the actions taken effectively prevent future recurrences of the problem?			
Other:			
SOPs (Work Sheet 9)			
Have the new SOPs been developed as planned?			
Are SOPs being followed accurately? If possible, the auditor should observe activities covered by SOPs that are being completed during their visit.			
Have existing SOPs been reviewed for accuracy as scheduled?			
Is the most recent version of every SOP being used? (Are they signed and dated to allow staff to determine if a posted or filed copy is the most recent version?)			
Other:			

Handout 11a. Audit Checklist: Overall EMS Review *(continued)*

ERPs (Work Sheet 10)			
Is everyone aware of the existence and location of the ERPs?			
Have the ERPs been reviewed for accuracy as scheduled?			
If an emergency did occur since the last audit, evaluate the following items:			
Was the plan effective? (The actions listed in the plan worked as intended)			
Within a reasonable amount of time after an emergency, was the plan reviewed and updated, if necessary?			
Were changes communicated to everyone in a timely manner?			
Other:			

Handout 11b. Audit Checklist: Stewardship Plan and Objective(s)

Directions: For each individual stewardship plan and objective (each copy of Work Sheet 6 that you made), review the following questions. Edit these questions as needed to ensure that this process is relevant to your operation. Make as many copies of this page as needed. For future reference, retain this completed checklist and file it either in the My EMS Workbook or another accessible place.

Note: Not every stewardship plan needs to be reviewed at the same time or with the same frequency.

Stewardship Plan Being Audited:	Environmental Auditor or Team:
Date Completed:	Lead Auditor Signature:

Development of the Plan and Objectives

Does the plan and objective address one or more of the priority issues or system components?	Is this plan and objective consistent with the policy commitments?	Were all key personnel included in the development of this plan and objective?
Yes No	Yes No	Yes No
Specific Comments/Recommendations?	Specific Comments/Recommendations?	Specific Comments/Recommendations?

Communication and Implementation of the Plan

1 = Excellent, 3 = Neutral, 5 = Poor

Note to Auditor: If not possible to talk to all staff members, talk to a representative group to determine the following items.

Do staff members know about and understand their assigned tasks? Do they have the appropriate training, skills, and knowledge to do it well?	Do staff members understand the environmental consequences of doing a task improperly?	Are activities being done as planned (at the stated frequency, by the stated deadline, and/or as stated in a written procedure/SOP)?
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Specific Comments/Recommendations?	Specific Comments/Recommendations?	Specific Comments/Recommendations?
Can more than one person competently perform critical or environmentally sensitive tasks (especially important for small farms)? ___ Yes ___ No		

Handout 11b Audit Checklist: Stewardship Plan and Objective(s) *(continued)*

Making Changes to the Plan

1 = Excellent, 3 = Neutral, 5 = Poor

Note to auditor: Poor performance, frequent or reoccurring problems, or frequent employee mistakes are often indicators of the need to identify potential changes. Is there evidence that the environmental plan is responding to these observations or events?

Were needed (written) changes to the plan or objective made in a timely manner (after first learning that a change was needed)?	Were these changes communicated to the affected persons in a timely manner?	Is there a signature and date on all copies of the plan to ensure only the newest one is in use?
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Comments/Recommendations?	Comments/Recommendations?	Comments/Recommendations?

Progress Toward the Objective

1 = Excellent, 3 = Neutral, 5 = Poor

Note to auditor: In your environmental plan, a performance measure may have been identified. Complete that measure of performance and then answer the following questions.

Is your measure of performance demonstrating progress toward the objective?	Were appropriate, timely actions taken to correct or prevent performance measures that were not acceptable?	Is there evidence that the operation has improved its environmental impact? How?
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Comments/Recommendations?	Comments/Recommendations?	Comments/Recommendations?

Audit and Management Review Schedule

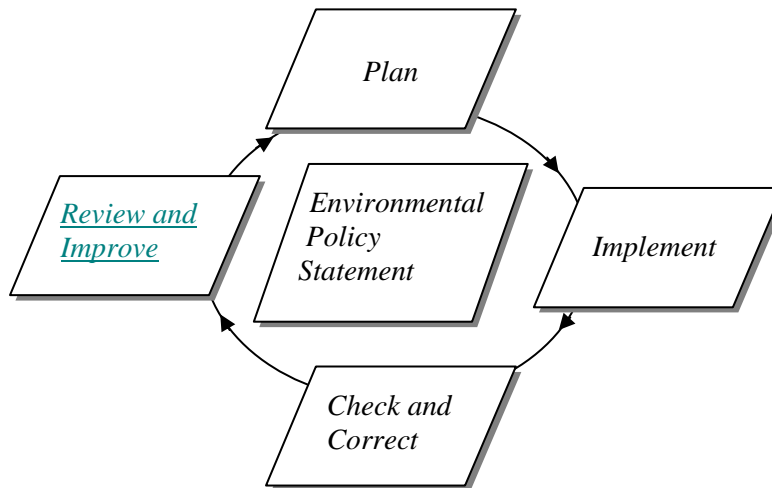
Are audits and management reviews of this objective and plan being conducted as scheduled (Review Work Sheets 11 and 12) _____ Yes _____ No

Other Comments or Recommendations:

Review and Improve

Purpose

To consider significant changes that have occurred within the operation or its operating climate. Those changes and your experiences with your plan will dictate the need for updates or new stewardship plans. The management review is the cornerstone of the commitment you made, in your policy statement, to continual improvement. The management review will bring your EMS full circle because it will help you update your plan. This updated plan needs to be implemented, checked, and corrected before it will once again be reviewed and improved.



Outcomes

After completing the “Review and Improve” section, you will have facilitated:

- Planning the details of the management review process.
- A discussion on how to start a new cycle of “Plan-Implement-Check and Correct-Review-Improve.”

Supplement 12. Management Review

The management review process is very complementary to an audit but distinct. The management review asks, “Where do we go from here? or What can we do better?” An audit asks, “Did we do what we planned?” These can be done as two separate processes, or if they are to be done by the same person/-group of people, they can be done concurrently.

Outcome

After completing Work Sheet 12 and reviewing Handout 12, producers will have developed a plan for reviewing their EMS on a regular basis to achieve continual improvement.

Tasks to be Completed with Each Producer

1. Read and discuss Fact Sheet 12.
2. Review Handout 12 and file it to use when the producer actually conducts an audit.
3. Fill out Work Sheet 12 in the *My EMS Workbook*.
4. Discuss how the management review “closes the circle” and puts the producer back at the beginning where he or she will now “re-plan” by editing existing pieces of the EMS (if needed) and add new pieces (such as stewardship plans for priorities that were not addressed previously or for new priorities that have been added), implement these changes or new pieces, check and correct to see how the changes or new pieces are functioning, review for continued improvement, and then begin another cycle.

Ideas for Group Discussion

- Who will be included in your management review and how often will you do them?
- Why is it important to review your EMS from time to time?

What Else is Needed to Reach ISO 14001?

No additional notes on this step.

Handout 12. Management Review Checklist

The purpose of the management review is to ask, “Where do we go from here?”

Directions: Gather the operation’s key personnel and work through the following checklist. You should also have the most recently completed audit checklist(s) and the My EMS Workbook as well as any other materials that may be important to review during this process. Summarize major changes, internal or external, that have occurred since the last management review:

Person or team conducting the review: _____

Date: _____

Questions to Consider (Edit or add others to best fit your operation.)	Are changes needed? (Y or N)	If yes, list changes. (Specify changes and/or list the actions to be taken.)	Check When Done
Significant Environmental Issues (Work Sheet 1)			
<ul style="list-style-type: none"> Do we need to make changes to our list of significant environmental issues? (Review Handout 1 or your own substitute). Do we need to improve the process (who is involved or how we decide what is significant)? 		Update Work Sheet 1 (and Work Sheet 4, depending on final version selected).	
Environmental Policy Statement (Work Sheet 2)			
<ul style="list-style-type: none"> Is the policy still relevant? Does it say what we want? Do we need to improve our methods for communicating the policy to those internal or external to our operation? 		Update Work Sheet 2 and all other written, electronic, or posted copies. Communicate changes to all personnel and relevant suppliers, contractors, and service providers.	
Communication			
<ul style="list-style-type: none"> Have our key personnel changed? Do we need to change who carries out tasks on Work Sheet 3? Do we need to edit, add, or delete responsibilities on Work Sheet 3? How can we improve communication with those internal to our operation (including new employees)? How can we improve communication with those outside of our operation? (See Handout 3 for ideas.) 		Update Work Sheet 3. Communicate changes to affected persons.	

Handout 12. Management Review Checklist (*continued*)

Priorities (Work Sheet 4)			
<ul style="list-style-type: none"> • Are all of our significant environmental issues listed on Work Sheet 4? (If you made changes to Work Sheet 1, make the appropriate additions, deletions, or edits to Work Sheet 4 as well.) • Are we making a good-faith effort to comply with our environmental regulatory priorities? 		Update Work Sheet 4.	
Assessments (Work Sheet 5)			
<ul style="list-style-type: none"> • Did our assessment process adequately review our activities and procedures? (Do we need to improve our assessment process?) • Do we need to conduct additional assessments? (especially related to newly identified significant issues or parts of the operation that were not previously assessed) 			
Stewardship Plans (summarized on one or more copies of Work Sheet 6)			
<ul style="list-style-type: none"> • Do we need to edit/update any of the items on the stewardship plan? • Is the listed objective still appropriate? 		Edit each plan as needed. Communicate changes to affected persons.	
<ul style="list-style-type: none"> • Do we need any new plans? • Did we identify new significant issues or priorities? (See Work Sheets 1 and 4.) 		<p>Make a copy of Work Sheet 6 (or your own substitute) for each new plan and complete it.</p> <p>Communicate the responsibilities assigned to individuals.</p> <p>Add items to Work Sheets 7, 8, 9, and 10 as needed, related to new plan.</p>	
Training and Communication (Work Sheet 7)			
<ul style="list-style-type: none"> • Are there additional training needs that we need to address? • Have we encouraged and offered opportunities for everyone to ask questions or offer suggestions for improvement? 		<p>Remove Work Sheet 7 from producer workbook and file.</p> <p>Fill out a new copy of Work Sheet 7 listing new training needs identified. (Be sure to carry over needs that were not addressed in previous year but are still part of the plan.)</p>	

Handout 12. Management Review Checklist (*continued*)

Record Keeping (Work Sheet 8)			
<ul style="list-style-type: none"> • Is there a more efficient way to collect or record the information we need? • Are we regularly reviewing these records and using the information to make informed management decisions? • Do we need to make changes to any of the information we record or collect? (Is there different information that would be more useful to help us make decisions than the current information?) • Is there additional information we should be recording to help make better decisions or evaluate progress? 		<p>Update Work Sheets 8a and 8b as needed.</p> <p>Communicate changes to affected persons.</p> <p>Remove outdated forms from use.</p>	
SOPs (Work Sheet 9)			
<ul style="list-style-type: none"> • Do we need to improve our process for reviewing, updating, communicating, or using existing SOPs? • Do we need to develop new or additional SOPs? (Is there one or more activities, either in new or existing environmental plans, that are critical enough to benefit from this control measure?) 		<p>Update Work Sheet 9 as needed.</p>	
ERPs (Work Sheet 10)			
<ul style="list-style-type: none"> • Do we need to improve our process for reviewing, updating, communicating, or using our existing ERPs? • Do we need to develop new ERPs? (Is there one or more potential emergency situations that are critical enough to benefit from this control measure?) 		<p>Update Work Sheet 10 as needed.</p>	
Audit (Work Sheet 11)			
<ul style="list-style-type: none"> • Do we need to make improvements to our audit process? (How can we make it more effective?) • When will the next audit(s) occur? 		<p>Update Work Sheet 11 as needed.</p>	

Handout 12. Management Review Checklist (*continued*)

Management Review (Work Sheet 12)			
<ul style="list-style-type: none"> • Do we need to make improvements to our management review process? (What can we do to make it more effective?) • When will the next management review(s) occur? 		<p>Update Work Sheet 12 as needed.</p> <p>Update the date on the cover of the <i>My EMS Workbook</i> and have appropriate people sign.</p>	

Appendix

The following table relates the elements contained in the ISO 14001 standard with the steps that (at least partially) address each of those elements. The workbook closely follows the ISO 14001 standard and someone who decides, in the future, to pursue registration to that standard will have already made significant progress toward that goal through the use of these materials. The table may be useful for ag owners/operators who choose to pursue ISO 14001 registration or for educators who wish to learn more about the ISO 14001 standard.

Table 3. Comparison to ISO 14001 (based on information available when this EMS supplement was published.)

ISO Element	Comparable Workbook Step	Notes
4.2 Environmental Policy		
4.2 Environmental policy	Work Sheet 2. Environmental Policy Statement	
4.3 Planning		
4.3.1 Environmental aspects	Work Sheet 1. Significant Environmental Issues Work Sheet 5. Assessments Completed	
4.3.2 Legal and other requirements	Work Sheet 3. Communications Work Sheet 4. What Are My Priorities?	
4.3.3 Objectives and targets	Work Sheet 6. Stewardship Plan	
4.3.4 Environmental management programme(s)		
4.4 Implementation		
4.4.1 Structure and responsibility	Work Sheet 3. Communication	
4.4.2 Training, awareness, and competence	Work Sheet 7. Communication and Training	
4.4.3 Communication	Work Sheet 3. Communications	
4.4.4 EMS documentation	<i>My EMS Workbook</i>	
4.4.5 Document control	Fact Sheet 9. Standard Operating Procedures	
4.4.6 Operational control	Work Sheet 9. Standard Operating Procedures	
4.4.7 Emergency preparedness and response	Work Sheet 10. Emergency Response Planning	
4.5 Checking and Corrective Action		
4.5.1 Monitoring and measurement	Work Sheet 6. Stewardship Plan	
4.5.2 Nonconformance and corrective and preventive action	Fact Sheet 11a. Are We Identifying and Correcting Problems?	
4.5.3 Records	Work Sheet 8a. Environmental Records	
4.5.4 Environmental management system audit	Work Sheet 11. Audit	
4.6 Management Review		
4.6 Management review	Work Sheet 12. Management Review	

Additional Sources of Information about EMS and Agriculture

Partners for Livestock EMS Project

“Partners for Livestock EMS” (<http://www.uwex.edu/AgEMS/livestock/index.html>) is a project examining the application of EMS concepts to dairy, beef, and poultry farms in nine states. Resources developed as part of that project are at <http://ems.unl.edu>.

“Agricultural Environmental Management Systems (AEMS)” by the University of Wisconsin Farm and Home Environmental programs office--<http://www.uwex.edu/AgEMS/EMSbookletFINAL.pdf>

All final products from the Partners for Livestock EMS Project will be included with the Livestock and Poultry Environmental Stewardship (LPES) Curriculum (<http://www.lpes.org>) and posted on the team’s website, <http://www.uwex.edu/AgEMS/livestock/index.html>.

Georgia EMS and Assessment tools targeting the poultry industry--
http://www.engr.uga.edu/service/extension/agp2/env_assess/index.php

Agencies and Universities

The University of Wisconsin Madison hosts an agricultural EMS website, <http://www.uwex.edu/AgEMS>.

Environmental Protection Agency EMS Information, including the agency’s position statement on EMSs--
<http://www.epa.gov/ems/index.htm>. The EPA also sponsors “Performance Track”--
<http://www.epa.gov/performancetrack/index.htm>.

Utah State University is working with CAFOs within their state to implement EMSs.--
<http://aems.aste.usu.edu/>

The Multi-State Working Group on EMSs is a consortium of organizations and businesses from the private and public sectors.--<http://www.mswg.org/>

National Database on Environmental Management Systems--<http://ndems.cas.unc.edu/>

EMS Information

International Organization for Standardization (ISO)--<http://www.iso.org>. To learn about the ISO 14001 standard for environmental management systems--<http://www.iso.org/iso/en/iso9000-14000/iso14000/iso14000index.html>

The American National Standards Institute (<http://www.ansi.org>) has information on accreditation programs for ISO 14001 registration--
http://www.ansi.org/conformity_assessment/accreditation_programs/accreditation_ems.aspx?menuid=4

The multi-state working group on environmental management systems--<http://www.mswg.org>

Additional Sources of Information about EMS and Agriculture (continued)

Publications

Environmental Protection Agency EMS publications--
<http://cfpub.epa.gov/compliance/resources/publications/incentives/ems/>

Other Farm and Agribusiness Pilot Tests

The United Egg Producers and the EPA worked together on Project XL to examine the application of EMSs to poultry operations.--<http://www.epa.gov/projectxl/uep/index.htm>

North Carolina pork producers, North Carolina Department of Environmental Quality, and North Carolina State University pilot tested ISO 14001 EMS processes on several North Carolina swine farms.--
<http://www.p2pays.org/iso/ag.asp>

The Iowa Soybean Association is leading a test pilot initiative called Certified Environmental Management Systems for Agriculture.--<http://www.iasoybeans.com/isa/cemsa.html>

Integrated Farm and Livestock Management Demonstration program--
<http://www.agriculture.state.ia.us/iflm.htm>

Utah State University agriculture EMS--<http://aems.aste.usu.edu/>

EMS in Australian agriculture--<http://www.rirdc.gov.au/ems/>