



Pork Environmental Management System Toolkit

To use this document:

Follow the step-by-step directions or visit the sections most appropriate for the user's needs. Examples, samples and forms relevant to each section are available to assist the user. Click the colored links to view the reference material. At the end of each section, a link to a folder is available with all documents referenced in that section.

For additional assistance, visit <http://www.p2pays.org/porktool/>.

This guidance document was created to assist in completing the Environmental Management System manual included with this toolkit. The guidance document includes a brief introduction to an EMS and a short description of each section of the EMS manual. This EMS manual was developed to provide a simplified version of an EMS. Feedback from pork producers revealed not all farms need to complete an entire EMS but would still benefit from one or more components rather than the entire system. This was particularly true for smaller, family owned and operated facilities with few or no employees. This is not to say that it would not benefit a small operation to have a complete EMS. However, if a producer chooses

to adopt any part of an EMS, it is essentially improving his operation. With that said, it is up to the discretion of the producer to choose which sections of this EMS to use. It is encouraged to go through this entire process before deciding which sections are most beneficial.

The simplified EMS manual is designed for the producer to fill in the blanks under each section. There are also references under certain sections referring to appendices 1-9. This appendix is attached to the simplified EMS manual and is NOT to be confused with appendices A-J referred to within the guidance document. The producer completing the simplified EMS manual will be responsible for filling in appendices 1-9 with the appropriate material created through the guidance document.

Refer to the following for a listing of appendices 1-9 of the simplified EMS manual.

Appendix 1: Significance Criteria

Appendix 2: Significance Ranking Table

Appendix 3: Objectives and Targets

Appendix 4: Training Requirements

Appendix 5: Operational Control Table

Appendix 6: Monitoring and Measuring of Key Characteristics

Appendix 7: Training Sign-in Sheet

Appendix 8: SOPs

Appendix 9: Corrective and Preventative Action Form

EMS Definitions:

Environmental policy statement – statement of overall intentions and direction of the farm related to its environmental performance as formally expressed by producer.

Scope – the area or fence line of what the EMS encompasses (i.e., hog house(s), lagoon and sprayfield).

Activity – what you do at your farm (examples include spray irrigation, house maintenance, mortality handling).

Environmental aspect – elements of the farm’s activities that can interact with the environment.

Environmental impact – any change to the environment, whether adverse or beneficial to a farm’s activities.

Significant environmental aspect – an environmental aspect that has or can have a significant environmental impact.

Integrator – the owner/supplier of animals that are grown on a contractual basis by a producer.

External interested parties – individuals or groups concerned with or affected by the environmental performance of the farm (neighbors, media, environmental organizations, etc.).

Compliance – complying with all relevant legal requirements.

EMS elements – requirements of the ISO 14001 standard which are included in the simplified pork EMS manual as sections.

EMS nonconformance – any deviation from the farm’s EMS such as failure to follow farm standard operating procedures, complete scheduled checklists, or review environmental aspects in timeframe specified.

Environmental objective – environmental goal that a farm sets for itself.

Environmental target – detailed method to achieving and supporting a specific objective.

Standard Operating Procedure (SOP) – work instructions or operational procedure. A procedure is a specified way to carry out an activity or a process.

Other requirements – requirements to which the farm subscribes to but is not a legal or regulatory requirement.

What is an EMS?

An environmental management system is an organized approach to managing environmental impacts. An EMS:

- is voluntary;
- leads to more organized, consistent and comprehensive environmental management;
- provides standard procedures and steps designed to support continual improvement;
- provides a framework for a producer to meet their environmental goals and objectives;
- increases a producer's confidence that they are addressing all issues related to their farm's impact on the environment;
- is dynamic and adaptable;
- is results-oriented; and
- emphasizes pollution prevention.

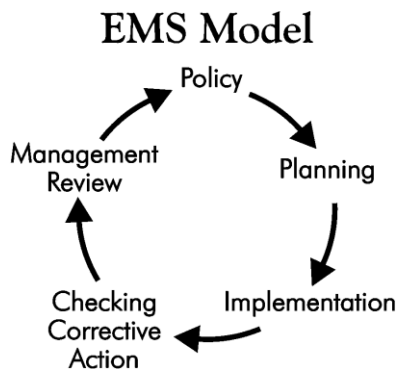
Producers who implement an EMS may also benefit from:

- improved management techniques and efficiency
- improved compliance
- reduced operating expenses
- improved operating efficiencies
- better communication
- improved public image
- enhanced customer trust
- reduced liability
- improved environmental performance
- increased employee awareness

An EMS does not:

- create additional environmental compliance requirements.
- completely eliminate management and environmental issues.

An EMS follows a "Plan-Do-Check-Act Cycle," or PDCA, and has similar elements to quality programs farms use now. Following a PDCA model leads to continuous improvement, an important feature of an EMS.



Plan - Identify environmental impacts and legal and other requirements. Establish environmental performance goals and objectives, and develop plans for addressing environmental impacts.

Do - Implement plans and procedures. Establish roles and responsibilities.

Check - Implement techniques for measuring progress toward goals and for addressing EMS problems and corrective/preventive actions. Establish audit processes.

Act – Implement management review procedures, improvement plans and adjustments (to goals, procedures, etc.).

An EMS takes an “umbrella” approach and considers day-to-day activities (water usage), infrequent activities (such as sludge clean-out), and potential accidents (leaking irrigation pipes) or emergencies (generator failure) that may impact the environment. An EMS also allows for a farm to consider collective impacts from various activities that combined may have more of an impact than when considered individually.

Getting Started

Some points to consider as you begin developing an EMS.

- Commitment of owners and management of a farm are critical to EMS implementation. Management must be committed to providing the time and resources needed.
- Make the EMS farm specific. Many good examples included in this tool and others can go a long way in helping a producer develop an EMS. However, each farm and situation is different and requires different approaches. What works for one farm may not work for another but can provide valuable guidance. A producer may decide to use some or all of the elements of an EMS. If some elements are skipped they can be included at a later date.
- Don't reinvent programs and procedures for the EMS that already exist. For example, producers already have plans or operating procedures for spray irrigation and crop management, pest control and catastrophic mortality management, to name a few. Monitoring and measuring lagoon levels and nutrient content of soils, and maintaining various records and checklists are already a part of managing a farm's environmental impacts. Each of these can be integrated into the EMS.
- Be prepared to dedicate a significant amount of time to develop and implement all or part of an EMS.
- Get help if needed! EMS assistance is available from a variety of organizations and [resources](#).

Using the Simplified EMS Manual Blank Template

- **Insert the farm name on the title page**

There are several areas throughout the manual where a producer will need to insert the farm name. Be sure to fill in the appropriate blanks where necessary.

- **Supply a brief description in the Introduction section**

This provides background information about the farm. The producer should include the farm type and location. The producer may also choose to give a brief history about the operation but that is up to the discretion of the producer.

- **Determine the scope of the EMS**

The scope should be inserted in the supplied blank under the Scope of the EMS section. This will define the extent and boundaries of the EMS. The producer can select a portion of the farm's activities to implement the EMS. For example, a birthing-to-finishing producer may include only the finishing part of the operation for applying an EMS. This flexibility allows producers to become more comfortable with their EMS development and implementation on a smaller, more management scale. They can add the rest of the operation into their EMS in the future. However, a producer may decide not to include other portions of their operation such as off-site maintenance garages or storage facilities unrelated to the swine operation. These operations can always be added to the EMS at a later date, though it is not required. It is completely up to the discretion of the producer.

- **Fill in the appropriate areas in Section 1 through 15**

Follow the directions below to complete sections 1-15. In addition, fill in the areas in red with the appropriate information.

Using this Guidance Document

When developing the EMS it is best to follow the step-by-step approach as outlined in this tool. Implementing an entire EMS is the recommended approach; however, through experience with pork producers it is not necessary to accomplish improved environmental performance. For instance, many producers benefited from the legal requirements table, SOPs, monitoring and measuring and the emergency preparedness sections. Others have noted their appreciation for the aspect and impact identification and ranking. This tool is designed to allow the producer the freedom to choose what parts of the EMS will be beneficial and may choose to add other components later.

The ultimate goal is reduce the farm's environmental footprint while increasing business functionality. Any portion of this EMS that a producer feels will complete that goal is what should be used.

A [simplified EMS manual](#) to be filled in by the producer has been created. There is an example of a [simplified EMS manual already filled in](#) that can be used as a reference. It has been tested and approved by local pork producers. A producer may decide to create his own EMS template. If so, please refer to DPPEA's Web site at <http://www.p2pays.org/porktool/>. If Web access is not available, please contact DPPEA to request the material at 1-800-763-0136. If a producer prefers to have a more in-depth EMS, he may choose to use the [sample manual-ISO 140001](#) example. To view this same manual already filled in as a reference, please refer to [sample manual-ISO completed](#).

Examples of standard operating procedures, checklists, work instructions and other tools are provided in the appendices of this toolkit. All of the tools provided were created with feedback directly from local pork producers. These can be incorporated into the EMS manual template or maintained as separate documents. In addition, more samples of all above documents can be found at <http://www.p2pays.org/porktool/>.

It is recommended that this tool is followed section by section. For each section:

- read the guidance and follow any step-by-step instructions.
- refer to examples and review tools.
- use the templates, worksheets, checklists, etc. to design one's own EMS. Feel free to create different or unique materials or incorporate what already exists at the farm.

All materials or presentations within this toolkit can be copied and used by producers to design their EMS.

Guidance Document

Section 1: Environmental Policy

Building the EMS begins with creating a policy statement that sets direction and vision. This statement provides a framework for planning, implementing and improving a farm's EMS, and states the producer's commitment to the environment. A strong, clear policy statement serves as the starting point for developing the EMS and a reference point for improvements.

The policy statement is a public statement that shows the producer's commitment to preserve the environment. Many producers choose to hang a printed version of their policy statement in their office or other areas of high traffic. Some have even created a newsletter for their neighbors and local community. In this newsletter, they have included their policy statement.

Write an environmental policy statement.

- The policy statement must include the following three major requirements:
 1. Commitment to comply with legal and other requirements.
 2. Commitment to prevent pollution.
 3. Commitment to continual improvement.
- Keep the statement brief, appropriate to the scope of the EMS and meaningful to the producer and employees.

Tips:

- Display the policy statement in view of employees and visitors. (If displayed, the producer should sign and date the environmental policy statement.)
- Make it available in another language if appropriate.

Refer to [Appendix A](#) for various examples of policy statements in Spanish and English.

Section 2: Environmental Aspects

The next step of building the EMS is to identify the activities (what a producer does on the farm) and the corresponding aspects of the farm that have or can have significant impacts on the environment. Once aspects and impacts are identified, they will be ranked in order of greatest impact or potential impact.

Environmental Aspect: Elements of a farm's activities that can interact with the environment. Often thought of as the *cause*.

Environmental Impact: Any change to the environment, whether positive or negative, resulting from the farm's activities. Often thought of as the *effect*.

This element of the EMS is frequently one of the most confusing, difficult and time-consuming processes in EMS development. It can also be one of the most enlightening. The process of aspect and impact ranking allows the producer to ensure every possible element of the farms activities is addressed.

To assist producers in completing this element of the EMS an interactive Aspect/Impact Management tool has been developed. AIM allows the producer to choose from lists and takes him step-by-step through identifying all the activities on the farm that have or can have an impact on the environment. The tool:

- guides one through the selection of activities, aspects and related impacts of those activities,
- helps one identify criteria to select significant impacts,
- enables one to score the impacts based on the criteria he has selected, and
- ranks all of the impacts to help the producer identify the significant impacts.

If the producer chooses to use this tool to assist him in identifying the significant impacts of the farm activities please visit

<http://xapps.enr.state.nc.us/survey/index.jsp> or cut and paste this address directly into a Web browser.

Internet access is necessary to access the AIM tool. If the AIM tool is not used, please continue following this guidance to identify the farm's significant impacts.

Step 1

- List all farm activities **within the scope of the EMS** that could have an environmental impact. Include day-to-day operations (watering/feeding the animals), weekly or monthly operations (berm maintenance, pull pit pulls and refill), quarterly or semi-annually (complete house cleaning, animal transfer or new animal delivery), infrequent operations (lagoon clean-out) and activities related to accidents or emergencies (lagoon spill, generator failure). Activities

can include areas such as lagoon waste management, animal care/clean-up, general maintenance or mortality management. Consider listing activities over a period of time and ask key employees to do the same. Combine these lists to get an overall view of all farm activities included in the scope. Some examples are provided in chart form and/or excel spreadsheets. These are just example and are not considered comprehensive. Refer to the [Sample Activities List](#) for a reference when developing your activities. A producer needs to make it his own because the lists provided may not be all encompassing. .

Example Activity Chart:

ACTIVITY	ASPECT	IMPACT
Waste Application		
Lagoon Management		
Mortality		
General Cleaning		

Step 2:

- For each activity, list the corresponding environmental aspects (*cause*). How does this activity interact with the environment? (Example 1: **activity** = lagoon waste management; a potential **aspect** of that activity would be lagoon breach. Example 2: **activity** = waste application; a potential **aspect** of that activity would be overspray.) For an example of an activity and aspects listing, refer to [Appendix B- aspects identification](#).

Example Aspects Chart:

ACTIVITY	ASPECT	IMPACT
Waste Application	Ponding	
	Overspray into ditches	
	Over application	
Lagoon Management	Lagoon breach	
	Improper berm management	
Mortality	Incinerator	
	Water usage	
General Cleaning	Electrical usage	
	Cleaning material disposal	

Step 3

- After determining the activities and aspects, the impacts (*effects*) related to the aspects should be identified. Identifying aspects is like asking what change to the environment could result from this activity. The result or change could be a positive or negative effect. For instance, with an activity of waste application and the aspect of spraying waste, there could be a positive impact (less chemical fertilizer use) or a negative impact (water pollution). For a listing of impact definitions, please refer to [Appendix B-Impacts definitions](#). For an example of impact identification, refer to [Appendix B-impacts worksheet](#). Please use these as guides. The producer will have his own activities and aspects identified. He should either create his own forms to use with his information or adjust the supplied examples to suit the farm’s needs.

Example Aspects and Impacts Chart:

ACTIVITY	ASPECT	IMPACT
Waste Application	Ponding	ground water contamination
		soil contamination
	Overspray into ditches	soil erosion/contamination
		surface water pollution
	Over application	ground water contamination
		surface water pollution
		air quality degradation
soil erosion/contamination		
	odor	
Lagoon Management	Lagoon breach	surface water pollution
		ground water contamination
	Improper berm management	soil erosion
Mortality	Incinerator	air quality degradation
		odor
General Cleaning	Water usage	depletion of ground water
	Electrical usage	non-renewable energy
		depletion of natural resource
	Cleaning material disposal	reduction of landfill space

Step 4:

- Once all the farm's activities and related aspects and impacts have been identified, the next step is to develop the criteria to determine the significance of each impact. This step allows the producer to identify - specifically for his farm - the aspects of the farm's operations that have or can have significant impacts on the environment. This process is the foundation of the EMS that the rest of the sections will be built around...
- Legal requirements, severity of impact, concerns of interested parties, and likelihood of occurrence are suggested criteria. One may include these and others as best fits the farms situation. Refer to [Appendix B-ranking criteria](#) for an example.
- Once the criteria have been chosen, decide how to rank (or score) them. It can be done by simply assigning a numerical range to the criteria.

For example: one might identify legal requirements as one of the criteria and assign a numerical score of 1-3 for ranking the impact. Each score would represent the following:

- 3 = regulated – could result in a fine or Notice of Violation
- 2 = regulated – could result in Notice of Deficiency or other violation
- 1 = not regulated

If the impact from an identified aspect is regulated and could result in a fine or NOV, then a score of 3 would be assigned to that impact. If the impact is not regulated, a score of 1 would be assigned to that impact. Simple ranking systems of 1-3 works well but choose what works best for the producer.

Example Ranking Criteria Chart:

CATEGORY	3 - HIGH	2 - MEDIUM	3 - LOW
Severity	Significant long term effects on the environment, and/or potentially life threatening or life altering to humans or wildlife. Impacts are irreversible	Short-term effects on the environment, and/or danger of nonlife threatening health affects to human or wildlife. Impacts reversible with intervention	Little or no impact to the environment and/or no danger to the health of humans or wildlife. Impacts reversible without intervention.
Frequency	Impacts occur quarterly or more frequently	Impacts occur annually	Impacts have not occurred
Contribution	Aspects is major source of impacts in question	Aspects is medium source of impact in question	Aspect is a minor source of impact in question
Control	Slight control or uncontrolled	Average control in place	Very effective controls in place

Step 5

- Using the criteria and ranking system developed in Step 2, score each aspect and related impacts.
- Add the scores of all criteria to get a total score for each aspect. This number indicates the relative priority of the aspect compared to the other

aspects. Generally, the higher the total score is the higher the priority will be.

Review the prioritized aspects to determine which will be designated as significant. A producer may choose a total score and determine that all aspects with that score and greater will be designated as significant. For example: all aspects are significant if the total score is greater than 15. The producer may also take other factors into consideration when determining significant aspects. For example: all aspects are significant if the total score is greater than 15 or has a rating of 5 (high) for legal requirements. An example Excel spreadsheet with formulas for calculating ranking scores used by pork producers is included. A producer can use the ranking criteria included, by inserting his farm’s activities, aspects and impacts or change it to accurately reflect specific needs. Refer to [Appendix B-aspects and impacts ranking spreadsheet](#) for an example excel spreadsheet. To view a completed example ranking spreadsheet created by a producer, please refer to [Appendix B-aspects and impacts ranking example](#). In this example, the producer chose to have anything with a score of 6 or higher deemed as significant.

Example Significance Ranking Chart:

Activity	Aspect	Impact	Ranking				
			Severity	Frequency	Contribution	Control	Total
mortality	incinerator	odor	2	3	2	3	10
mortality	incinerator	air quality degradation	2	3	2	2	9
lagoon management	lagoon breach	surface water pollution	3	1	3	1	8
lagoon management	lagoon breach	ground water contamination	3	1	3	1	8
waste application	ponding	soil contamination	2	2	2	1	7
waste application	over application	surface water pollution	2	1	3	1	7
waste application	over application	odor	1	2	3	1	7
waste application	ponding	ground water contamination	2	1	2	1	6
waste application	overspray into ditches	surface water pollution	2	1	2	1	6
waste application	over application	ground water contamination	2	1	2	1	6
waste application	over application	soil erosion/contamination	2	1	2	1	6
lagoon management	improper berm management	soil erosion	2	1	2	1	6

- Identification of the significant aspects of an operation is an important building block for the remainder of the EMS. This prioritization is important in identifying the areas (activities) of farm production to focus improvement efforts.

Section 3: Legal and Other Requirements

Identifying and keeping up-to-date with legal and other requirements is important to the implementation and continued improvement of the EMS.

Generate tables listing regulatory and other requirements, record-keeping requirements, and external regulatory inspections. See the links below for an example of a legal and other requirements procedure and related documents.

A simple legal requirements table is included in the provided manual. This table was developed by pork producers and should encompass most necessary legal and other requirements. If using the table included in the manual, review it closely and include any additional requirements applicable to the scope of the farm.

For a more in-depth legal requirements table than what's included in the manual refer to [Appendix C-legal requirements](#) . It is at the discretion of the producer to choose a legal requirements table that suits the need of the farm. To view a summary of permit requirements, please visit [Appendix C-Permit Requirements](#).

Section 4: Objectives and Targets

Once significant impacts are identified they are used to establish objectives and targets. The objectives and targets serve as the farm's environmental goals. It represents moving from a planning stage to putting things into action.

Step 1

- Identify ways to improve operations on the farm (establish objectives). An objective is an improvement goal that is specific and is consistent with the farm's environmental policy. When establishing these objectives one should consider:
 - Significant aspects
 - Environmental policy

- Legal and other requirements
- Technology availability (be sure to consider pollution prevention opportunities such as alternative technologies)
- Financial, operational and business requirements
- Views of interested parties.

Step 2

- For each objective establish a target that is realistic and measurable. A target is a detailed method to achieving and supporting a specific objective
- The target should be measurable when possible.

Step 3

Once an objective and target has been established, it is helpful to develop an action plan on achieving the objective. When developing the action plan, be sure to identify who is responsible for that objective and what timeframe to complete it is expected. This helps to ensure the objectives are completed. It serves as a reference to the producer and others affected.

Example Objective and Target:

Objective	Replace old incinerator with a more environmental friendly mortality composter
Target	Replace incinerator with a mortality composter by the end of 2010.
Action Steps	<ol style="list-style-type: none"> 1. Work with local SWC district and NRCS representatives to obtain cost sharing and design information 2. Purchase composter 3. Install composter
Responsible Staff	Joe Johnson (farm manager)-primary Jimmy Smith (employee) -secondary
Timeframe for Completion	December 2010
Monitoring and Measuring	When job is complete

Refer to [Appendix D](#) to view various objective and target forms as well as examples from actual producers.

Section 5: Structure and Responsibility

The purpose of this section is to define and document roles and responsibilities for the farm. These roles and responsibilities must be clearly communicated to appropriate staff.

Step 1

Identify personnel responsible for activities that could have an environmental impact. Communicate their role and responsibilities as needed to ensure compliance with rules and regulations and conformance with your EMS.

A generic structure table is included in the provided manual. Free feel to adapt it to the producer's needs.

Section 6: Training, Awareness and Competence

Successful implementation of an EMS is dependent upon employees being adequately trained. All employees should be trained at a minimum on the following:

- the environmental policy,
- significant environmental aspects of their activities and related work instructions,
- objectives and targets,
- their EMS roles and responsibilities, and
- environmental emergency action plan.

Step 1

- Identify training needs of each employee within the scope of the EMS. It is highly recommended to maintain employee training records. A sample training sign in sheet is located in Appendix III of the EMS manual or refer to [Appendix E-training sign in](#) sheet to view. This or another sign-in sheet is highly recommended. It provides a record of who attended the training and what they were trained on.
- Identify training topics and develop training materials where applicable. You will want to train each employee on relevant parts of the EMS as well as their specific job duties. A majority of farm employees have been doing their work for a significant amount of time. Many producers found it beneficial to have the workers create an SOP or checklist of their job functions. Once completed, the farm manager should review these duties with the employee. It is a good record to have for future reference.

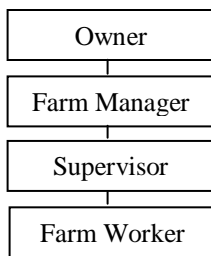
When the training takes place, determine who will do the training, and where and when the training will take place.

Training is recommended when:

1. EMS is first implemented;
 2. new personnel are hired;
 3. employee responsibilities change;
 4. procedure changes;
 5. there is a new process, material or equipment; or
 6. new regulations are put in place.
- It is important that employees demonstrate competency. It is at the producer's discretion to determine competency. It may be as simple as observing personnel during normal working conditions and/or by asking questions.

A simplified table is included in the manual as well as shown below. Free feel to modify this or use a more in-depth table such as the example shown in [Appendix E-training chart](#). This chart includes more information than discussed in this guidance document.

Simplified Organization Chart



Section 7: Communication

Communication is a key component of a successful EMS and includes effective communication with both farm employees and external parties (neighbors, community members, local businesses etc). Active communication helps to maintain the flow of information, motivate employees, demonstrate management commitment and keep interested parties engaged in the farm's EMS and its activities.

- Identify the personnel responsible for communicating information, both internally and externally to the farm, related to the aspects and EMS. This is often the farm manager or owner.

Internal Communication

- Internal communications should explain the environmental policy, address the EMS roles and responsibilities, and address progress toward objectives and targets. Other examples may include: concerns or improvement suggestions, work orders and training on work instructions.

External Communication

- Define the process for documenting external communications.

Examples of external communications may include: comments listed on regulatory inspections, inquiries from the media, communications with contractors or insurance personnel, or contacts from outside interested parties or visitors.

It is recommended that all external environmental-related communications - whether positive or negative - be recorded for future references. Also record any action taken as a result of these communications.

Section 8: Document Control

Controlling documents relevant to the farm's EMS is an important part of implementing, improving and tracking progress.

An easy to use simple process is best. Whatever process one chooses to control EMS documents, remember that the main goal is to have an effective EMS, not to create a massive documentation system.

Keep these points in mind when developing the procedure:

- Documents must be easily located. One way to do this is to create a master EMS document list. This is also helpful for inspections and permit requirements.
- Documents should be periodically reviewed and revised. Original documents need to be dated with the most current date of revision.
- Current versions of documents need to be available at all locations where operations essential to the EMS are performed.
- Obsolete documents are to be promptly removed from all points of use.
- Obsolete documents are to be retained when necessary for legal and or knowledge preservation.

- Reasonable precautions should be taken to protect original documents from damage or loss, such as from fire or flood. Some producers choose to keep the most relevant documents in a fire safe.

Section 9: Operation Control

Instructions for activities associated with the significant aspects are to be communicated to all relevant personnel. These instructions (i.e. work instructions) provide directions to employees on how to perform various activities and also identify, plan and manage the farm's operations. Instructions should tell employees “what to do” and “how to do it” to ensure and enhance environmental protection and to meet legal requirements. Operational controls ensure that the farm's activities are in line with its policy, objectives and targets and are consistent with environmental regulations. Having operational controls proved to be one of the most beneficial experiences of the EMS development for producers. Producers had employees write down their duties and how they did their work. It allowed the producer to ensure the work was being done the proper way and opened up communication among them. In addition, if new employees came onto the farm the operational controls allowed consistency among the workers.

Instructions may include:

- Standard operating procedures or work instructions that address specific activities that help control or manage the significant aspects.
- Checklists or forms, such as a weekly inspection checklist for a waste management system. The checklist may include items such as evidence of leaks, cracks in storage containers or lagoon, etc.
- Signs, such as a “cardboard only” sign on a dumpster.

Step 1

Determine what operation controls (SOPs, checklists, signs, and work instructions) already exist. It also would be beneficial to determine the most important functions performed on the farm. Have key employees record what they do if it has not been done. Have the farm manager review the instructions of the jobs performed. This ensures work is being performed properly and allows for additional employees to perform the same work correctly. Decide if additional operational controls are necessary by asking the question: “If no controls are in place, could this have a real or potential impact to the environment?”

Step 2

Decide if additional operational controls are necessary by asking the question: “If no operational control is present, could negative environmental aspects and impacts occur?”

Step 3

Develop new controls as needed.

Step 4

It is recommended that producers develop a process for providing information on the farm's EMS and emergency contact protocols to non-farm personnel such as visitors, contractors and delivery personnel. This may be as simple as posting a notice in a visible location outside the farm office.

Step 5

Consider if any of the above material should be created in another language as well. If English is not the first language for your workers, it would be highly beneficial to include relevant documents, such as work instructions, SOPs and checklists in their native language.

Examples of work instructions, SOPs and checklists are included in [Appendix F](#).

For additional examples of SOPs, work instructions and checklists, including a selected few in Spanish, please visit <http://www.p2pays.org/porktool/sop.asp>.

Section 10: Emergency Preparedness and Response

Prevention of pollution is a goal of the EMS. Unfortunately, events such as fire, catastrophic mortality loss, flooding, lagoon breach and spills occasionally occur, resulting in environmental impacts. Identification of potential emergencies and response planning can eliminate or reduce loss, injury and environmental impact. This section has been noted by many pork producers as one of the most valuable.

Step 1

- Identify potential emergencies by listing different emergencies that could occur at the farm and develop directions on how to respond to each of them. Include contact information. Consider using existing emergency action plans as required by law and add additional scenarios as needed.

Step 2

- Consider posting emergency contact information for non-farm personnel. For example:

<p style="text-align: center;">ATTENTION: NON-FARM PERSONNEL IN THE EVENT OF AN ENVIRONMENTAL EMERGENCY PLEASE CALL (xxx) xxx-xxxx</p> <p style="text-align: right;">(date)xx/xx/xx</p>
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Step 3

- It is recommended that the emergency response plan be reviewed at least once every three years, or after every occurrence of an accident or emergency situation.

If the producer does not perform drills or test their emergency response plan, it would be a good idea to start. Employees need to be aware of what to do in case of an emergency. If the test are done at the farm, it should be recorded when they were done and who participated.

Refer to [Appendix G](#) for emergency preparedness and response forms. Feel free to adapt the form to better suit the producer.

Section 11: Monitoring and Measuring

It is important to monitor key activities (i.e. spray irrigation, waste management) that can have a significant impact on the environment. In order to improve the environmental performance of the farm, quantifiable measures (i.e. amount of waste sprayed, lagoon levels) must exist. This allows the producer to see long and short term performance or pinpoint deviation from appropriate operations (i.e. spray records could reveal that one sprinkler is spraying too much or too little waste). It also shows trends that are occurring (i.e. electrical bills, water bills) that could lead to money savings or improved performance.

Step 1

- Identify key indicators of the farm's operations and activities. These should include indicators that can be monitored and measured on a regular basis for:

- Compliance with relevant legal requirements (it is recommended that compliance with relevant environmental legislation and regulation be evaluated at least once per year);
- Progress toward environmental objectives and targets;
- Evaluation of environmental performance.

Examples include:

- soil sample analysis
- spills
- feed consumption data
- mortality rates
- power bills
- water consumption
- waste analysis
- lagoon level records
- fuel delivery bills

Step 2

- Identify monitoring equipment used on your farm and ensure the equipment is:
 - calibrated.
 - maintained.
 - records are kept.

Monitoring and measuring ensures the creditability, reliability and accuracy of recorded data and information. It allows the producer to see his performance over a set time period, recognize problems, identify money saving opportunities and improve farm efficiency. Information collected may also be used to plan for future improvement goals. Many producers choose to not record monitoring and measuring information separately, however, it is up to the producer. Instead, many will keep their power bills, gas bills, feed bills, etc. as a way to monitor and measure. In addition, spray records, lagoon levels, inspection reports and rain records also serve to as effective monitoring and measuring records.

Refer to [Appendix H](#) for monitoring and measuring examples used by other producers including actual tracking spreadsheets.

Section 12: Nonconformance and Corrective and Preventive Action

No EMS is perfect - especially in the beginning - and therefore problems with the system will probably occur. An EMS is about continual improvement.

The term used to describe problems with the EMS is “nonconformance,” not to be confused with “noncompliance.” A nonconformance is an inconsistency between the EMS implementation and the actual EMS description, or the system does not meet the EMS criteria. A “noncompliance” refers to a violation of an environmental standard, whereas a “nonconformance” refers specifically to the EMS. Examples of a nonconformance include failure to follow farm SOPs, employees not aware of their EMS responsibilities (not properly trained), etc.

To address a nonconformance, the problem needs to be identified, corrected (corrective action), and prevented from happening in the future (preventive action). Corrective and preventive action allows for ongoing improvement of the EMS and environmental performance.

Corrective and preventive actions should ultimately determine root cause and should:

- resolve the immediate problem;
- consider whether the same or similar problems exist elsewhere;
- prevent the problem from recurring; and
- define the responsibilities and schedules associated with these three steps.

A producer may choose not to record the corrective and preventive action in a specified form. It is at the producer’s discretion; however, it is good practice to record this information. It is a good way to show problems on the farm, employee performance (if issues reoccur) and what actions have been taken to prevent these problems from happening again. For example, if there is a sprinkler not working properly, thus allowing more waste to be sprayed in one field, a corrective action form from the corrective and preventive plan could be created. By doing so, the producer has a record of what happened and how it was corrected. The next step could include preventative measures for example adjusting preventative maintenance schedules (calibrating sprinklers) or increase training (waste application training). This can be of particular benefit when inspections take place. It shows the producers commitment to prevent future similar issues from taking place. To create a corrective and preventive action plan, follow the steps below.

Step 1

- Develop a clear process for initiating and completing corrective and preventive actions. The process should provide a means to:
 - Determine the problem and identify the cause;
 - Identify and implement corrective action;
 - Initiate preventive actions;
 - Apply controls so that preventive actions taken are effective; and
 - Record any changes in written SOPs resulting from the corrective action.

This process will be most successful when employees are encouraged to report any problems they see that might result in a negative environmental impact.

- Tip - Main reasons EMS problems occur:
 - Poor communication;
 - Lack of training;
 - Lack of understanding;
 - Procedures not followed; and/or
 - Equipment malfunctions or not maintained.

Refer to [Appendix I](#) for an example form to use for a corrective and preventative action as well as an example of the form filled in.

Section 13: Records Management

Good management of records can provide the farm with a history of environmental performance and improvements.

Step 1

- Identify and maintain a list of relevant environmental records. This listing can be kept separately or can be recorded in Legal and Other Requirements Table located in the simplified manual (Table 3).

Step 2

- Determine a retention period and storage location for these records.

It is recommended that relevant records be retained for five years or in accordance with regulatory requirements.

- Reasonable precautions should be taken to protect records from damage or loss such as from fire or flood.

It may be beneficial to keep a table of relevant records to ensure their availability. Refer to the table below as an example.

Record	Location	Retention Period
Soil Samples	Owner's office	X years
Waste Sampling	Owner's office	X years
Lagoon Level	Owner's office	X years
Objective & Target list	Owner's office	X years
Training Matrix	Owner's office	X years
Training Sign-In Forms	Owner's office	X years
External Communication Form	Owner's office	X years

Section 14: Environmental Management System Audit

After the farm has established its EMS, it is important to evaluate - or audit - how well the EMS is being implemented. It is recommended to have one person, for example, the farm manager, be responsible for auditing the farm EMS.

Audits are usually performed annually. The producer can audit the entire EMS at one time or break it down into different areas and audit a few areas at a time. However, it is highly beneficial to review all EMS sections annually. It is recommended that the results of these audits be recorded and dated.

If audits are performed, the audit results should be reviewed by the producer. Information collected assists in determining overall EMS effectiveness and ongoing effectiveness.

If interested in viewing an EMS Audit form, please visit [Appendix J-audit report](#).

Section 15: Management Review

To maintain continual improvement and effectiveness of the EMS, farm management should review and evaluate the EMS periodically. Management review subjects include:

- any changes that have occurred to the EMS;
- results from audits;
- review of aspects and impacts;
- discussion of objectives and targets met; and
- any concerns about the future.

The management should also consider making changes to the EMS, as this will help the system's continued effectiveness and improvement.