Agrochemicals and Security

A Training Module for the Safe and Secure Storage of Pesticides and Fertilizers

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Florida Cooperative Extension Service, 2005

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The Agrochemical and Security Series is available for download from the Florida Cooperative Extension's Disaster Handbook Web site <http://disaster.ifas.ufl.edu>. The series comprises six units:

- Why It Matters (An introduction to agrochemical security)
- Chemical Safety
- Homeland Security and Fertilizers
- Homeland Security and Pesticides
- Security and Anhydrous Ammonia
- Developing a Hazard Mitigation Plan

These materials were developed in part with support from the United States Department of Agriculture (Award 2002-41210-01440) and Extension Disaster Education Network (EDEN). To learn more about EDEN, please visit: <http://www.eden.lsu.edu/>.

About Florida AgSafe

Florida AgSafe is a program of the Florida Cooperative Extension Service that provides information and educational materials for agricultural safety and for disaster preparedness and recovery. Materials produced by Florida AgSafe are available on the Web at <www.flagsafe.ufl.edu> and at the Florida Cooperative Extension publication Web site <edis.ifas.ufl.edu>.

Our Goals

- To inform people about ways to be safe and secure, and thereby reduce the number of deaths, injuries and occupational diseases, particularly for agricultural workers and their families.
- To build a safety infrastructure for Florida through five activities: training of workers, training of students, publications, networks, and linkages.
- To encourage adoption of safe practices among employees and clientele. Every employee or client should be exposed to a safety tip or safety practice on a regular basis.
- To prepare the people of Florida to face disaster of any kind, to mitigate losses, both in life and property, and to promote rapid and effective recovery.

Preface

For many years, producers have been aware of the health hazards of pesticides. These materials are carefully regulated, and the safety requirements for every pesticide product are spelled out in detail. Most fertilizers have been in an opposite category, considered useful, safe and inert. However, in recent years, agricultural chemicals — specifically, fertilizers — have been used in some of the most damaging terrorist attacks around the world.

These attacks have given the general public, agricultural producers and governmental authorities a new point of view. It is important for all to realize that, in the wrong hands, agricultural chemicals, including fertilizers and pesticides, could be used to do great damage.

This module provides several units which address different aspects of this problem. There are six units in this training module (with the page numbers where they can be found in this manual):

Units can be used separately or in combinations depending on audience needs. Each unit consists of:

- A narrative which gives background material;
- A PowerPoint presentation which parallels the narrative;
- Pre- and post-tests, and an evaluation; and
- Table-top exercises (selected units).

The module is structured to give the presenter plenty of flexibility. Use all six units with table-top exercises to create a day-long workshop on agricultural security, or show only one PowerPoint presentation with a question and answer period for a 20- to 30-minute training session. Reduced images of all PowerPoint slides are included with each unit and can be copied to create a participant workbook.

How to Use Pre- and Post-Tests

The idea of a "pre-post" test is that participants take the same brief quiz before and after the presentation. This gives the presenter and the participants an objective view of how much participants learned and how effective different points in the presentation were. A pre-post test takes just a few minutes before and after the presentation, but it can be a valuable tool for evaluating the presentation and reporting its impact on participants.

Unit 6: Developing a Hazard Mitigation Plan

Subject

Agroterrorism using agrochemicals is one kind of man-made disaster. Producers can establish plans and procedures and make simple changes to their facilities that can minimize the impact of such an event. It begins with a Hazard Mitigation Plan.

Goal

Make participants aware of the importance of hazard mitigation. They will work through the steps of producing a hazard mitigation plan.

Objectives

As a result of this session, participants will:

- Understand the meaning of "mitigation."
- Understand the value of hazard mitigation planning.
- Understand the hazard mitigation process.
- Understand how to develop a hazard mitigation plan.
- Be able to prepare a partial hazard mitigation plan.

Session Outline

Part 1: Welcome and Introduction
Part 2: Unit Learning Objectives
Part 3: Pre-Test
Part 4: Learning Sections

- Section 1: What is hazard mitigation?
- Section 2: What can a Hazard Mitigation Plan do for you?
- Section 3: The Mitigation Process
- Section 4: Developing Your Hazard Mitigation Plan
  - Step 1. Create a Planning Team
  - Step 2. List operations and facilities
  - Step 3. Outline potential hazards and impacts
  - Step 4. List mitigation and response strategies for each hazard
  - Step 5. Prioritize operations
  - Step 6. Prioritize mitigation efforts.
  - Step 7. Assigning tasks and target dates
  - Step 8. Acquiring resources
- Section 5: Summary

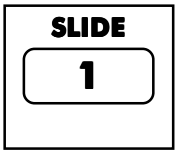
Part 5: Questions and Discussion
Part 6: Post-Test
Part 7: Session Evaluation
Part 8: Adjourn

Learning Environment and Aids

To conduct this training, you will need:

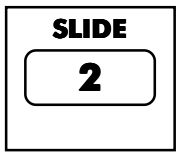
1. "Developing a Hazard Mitigation Plan" PowerPoint presentation, and a means to show it. (Download from the UF/IFAS DIsaster Handbook Web site: <http://disaster.ifas.ufl.edu>.)
2. Note paper or PowerPoint slide pages to serve as participant workbooks
3. If desired, sufficient copies of the Pre- and Post Test for all participants to take the test both before and after session
4. Unit 6 evaluation forms.

Part 1 — Welcome and Introduction



Take a moment at the beginning of the lesson to welcome the participants to the session. Introduce yourself as the presenter, and remind participants of the title and subject (above) of the session.

Part 2 — Unit Learning Objectives



Briefly introduce the audience to the learning objectives for this unit. As a result of this session, participants will:

- Understand the meaning of "mitigation"
- Understand the value of hazard mitigation planning
- Understand the hazard mitigation process
- Understand how to develop a hazard mitigation plan
- Be able to prepare a partial hazard mitigation plan

Part 3 — Pre-Test

If you choose to administer pre- and post-tests, do so now before you do anything else. Explain to the participants that everyone will take a short quiz before the session just to give themselves a clearer idea of what they already know about the subject and some things they will learn during the session. Tell them that they will take the same test at the end of the session and this will help the presenter by giving an idea of the effectiveness of the session.

The pre- and post-tests should take only a few minutes each.

Part 4 — Learning Sections

Section 1: What is hazard mitigation?

SLIDE 3

"Mitigation" is an unfamiliar word to most people, but it has a simple meaning: Mitigation means taking actions that will reduce damages if a disaster or other catastrophe occurs. It is an important part of any preparedness plan and should be the focus of business leaders and civil officials. Thinking in terms of mitigation is a way of prioritizing the many actions that can be taken in advance of disaster. It is like asking, "What can we do now that will best reduce injury and damage later?"

Although "hazard" is a more familiar word, emergency planners and safety specialists use this word in a specific way. For example, a sudden change in ceiling height is a hazard. It does not jump out and hurt anyone, but if you weren't paying attention, or if the ceiling wasn't marked, or if you weren't wearing head protection, you might bump your head and be hurt. In other words, a hazard is a source of possible injury or damage. Many work sites are full of hazards, but with adequate training, good working practices, and appropriate safety equipment, the number of injuries and incidents of property damage can be reduced.

SLIDE 4

Hazard mitigation strategies can fall into several categories. In the previous example, one option was to mark the ceiling to draw attention to the hazard. This is an example of an environmental solution, in other words, how can we change the environment to minimize the hazard? An important environmental solution is providing information about hazards. Tail lights on cars and back-up alerts on trucks do this, as do barricades, safety markings, and signs. Other categories of mitigation strategies are: engineering solutions (design and production of the helmet in the previous example); and behavior-based solutions (training the employees to 1) watch out for uneven ceilings, and 2) training them to wear the helmet). A fourth category is the human factors solution, which means designing the workspace for efficiency, comfort, and safety of the workers. In this example, it might be possible to find out why the ceiling is uneven and make adjustments that would reduce the possibility of head bumps. Look for these strategies in the examples that follow and as you work through the exercise.

SLIDE 5

Another example comes from riding in a car. People do this all the time without incident, but if a collision occurs, the normally safe interior of a car must be re-evaluated in terms of a person being thrown around in it. Under

these circumstances, the hardness of the dashboard, the placement of the steering wheel, or the windshield itself become hazards. The hazards exist all the time, but they aren't "activated" until there is a collision. There are many strategies in place to reduce the possibility of injuries due to collision. The first strategy has the goal of preventing collisions and comes in the form of driver training, organizing traffic flow to prevent collisions through the use of street markings, traffic signals, tail-lights, and rules of the road (and of course, a group of people whose job it is to observe drivers and penalize them if they break the rules!). A second strategy comes in the form of engineering cars that absorb impacts and resist crushing of or intrusion into the passenger compartment. A third strategy has the goal of interfering with the hazard if a collision occurs. This comes in the form of passenger restraints, i.e., seat belts and air bags, and the audible warning that tells passengers that a seat belt is not fastened. A fourth strategy – and a true mitigation strategy – is to reduce the damage that would result if a passenger is not restrained and is violently thrown in a collision. To mitigate injuries, car manufacturers try to eliminate hard surface or sharp objects from the car interior. They pad dashboards and steering wheels and most of the interior surfaces of the vehicle.

SLIDE 6

Let's take a more extreme example. Consider an explosion. In operations that employ volatile, flammable or explosive materials or high pressures, explosion is a possibility – it is a hazard, and owners or managers of such operations must take steps to prevent explosions, to provide a means of escape should an explosion appear imminent, and a means of reducing the impact on their operations if an explosion does occur.

If an explosion does occur, a new set of hazards is created. A previously safe work environment now presents the possibility of falling materials, jagged edges, exposed electrical lines, dangerous chemicals, and so on. So in mitigating hazards, it is important to think of the direct impact of a catastrophe like an explosion, which can kill and injure in the instant it happens by the shock and/or heat it generates, by shrapnel or other thrown materials, by falling materials, or fire. It is also important to think about the hazardous environment that the explosion will create out of a normal work environment.

In the *Agrochemicals and Security* module, we are focusing on acts of terrorism or sabotage that are by their very nature unpredictable. If we don't know when or where such an event might occur or what its nature or extent might be, how can we possibly prepare? What makes reasonable preparation possible is that many disasters require the same kind of response, and there is a response infrastructure at all levels of government that is training for a wide range of possible events.

Think of mitigation planning as something you do *before* an incident to put you in the best possible position *after* the incident. However, many planners include prevention (and therefore security) as part of mitigation.

Section 2: What can a Hazard Mitigation Plan do for you?

SLIDE 7

The first concern is protecting the lives and health of you, your family and workers in your operation. That is the highest priority for any hazard mitigation plan, so the first answer to the question is "It can save your life."

A hazard mitigation plan can also save your business. It can do this in one of two ways: 1) by protecting critical elements of your operation without which you might not be able to stay in business, and 2) by having alternate procedures and resources in place that allow you to continue your operation while you are recovering from an incident. The latter topic is often referred to as business continuity, and there is a lot of information and some periodicals devoted to this subject. We often think about critical infrastructure, such as the facilities, tools and machinery, that we use everyday in operations. But equally important are fuel, electricity, and computers.

Consider also how your hazard mitigation plan can affect your insurance rates and protect your operation's neighbors, customers, your community and the environment.

Section 3: The Mitigation Process

SLIDE 8

Developing a mitigation plan is one part of the mitigation process. The complete process has several phases:

- Development of a hazard mitigation plan
- Implementation of the plan
- Periodic review of the plan
- Working the plan (in case of an incident)
- Examination of the plan (after an incident)

We'll look at each of these phases briefly and then proceed to developing a hazard mitigation plan.

Phase 1: Developing a Mitigation Plan

SLIDE 9

Developing a mitigation plan involves identifying the risks your operation faces and deciding what actions you could take both in advance of and in reaction to an incident.

Planning is about what could happen, and often, people prefer not to think about that. They may prefer to imagine that if there is a disaster, their knowledge of the operation and the facilities will allow quick action. For most people, their expectation of what will happen is based largely on what has happened. For all these reasons, it would be easy for many people to resist making the effort to plan for disasters. When companies review the causes and complicating factors behind the loss of lives, property, or data, it often comes down to a failure to anticipate the impact of an incident. Regardless of the size of your operation, the time invested in developing a plan is time well spent.

It can be easy to get lost in the planning process and forget that the point of the plan is making it work when an incident occurs. The plan must be specific enough to cover the kinds of incidents one would expect in an operation like yours, but it must also be flexible enough so that you can handle unexpected kinds of incidents.

We'll be developing a mitigation plan later in this exercise, so we'll leave this part of the process here.

Phase 2: Implementation of the Plan

SLIDE 10

There is a certain value to developing a mitigation plan in and of itself. It alerts you to dangers to your operation you might not have been aware of. But a plan by itself isn't very valuable, and a plan doesn't become part of your operation without a critical step: implementation.

Implementation is a process within itself. You must sit down with the plan and probably some colleagues or managers and prioritize the elements of the plan. Once you know what elements of the plan will be put in place first, then it is time to figure out how it will get done.

What resources are needed? Where will needed materials be purchased? When will workers be trained in new procedures or the use of new equipment? Each element of the plan will get a plan of its own to make it a working part of your operation.

Implementation can include rehearsing the plan. For instance, some elements of a mitigation plan may require a high level of communication or coordination in shutting down operations in the right order or at critical moments. If your plan includes complex procedures like this, it is a good idea to schedule classroom training followed by a drill. Although some workers or managers may resent the time that training takes from their work, they must realize the importance of being prepared to work as a team in the event of an emergency. If drills are impractical, table-top simulations can be used.

Phase 3: Periodic Review of the Plan

SLIDE 11

You should arrange to meet with your planning committee at regular intervals, at least annually, to review your mitigation plan. Your operation can change in ways that require additions or deletions from the plan. New workers will need training in your mitigation plan – untrained workers can quickly become part of the problem in an emergency situation.

Phase 4: Working the Plan (in case of an incident)

SLIDE 12

When an incident occurs, you will find out quickly how good your planning, implementation and training are.

Phase 5: Examination of the Plan (after an incident)

SLIDE 13

After an incident is over, bring together workers and managers and examine how the plan performed. Did everyone know their role? Were required resources readily available and in good condition? If local responders were required, interview them and find out what they saw in your plan that was helpful and what hampered their efforts. Take time to revise your mitigation plan and go through another implementation phase to bring together the necessary resources, train workers, etc.

Ironically, an incident can provide an opportunity to design your operation with mitigation in mind. This is another benefit of mitigation planning: it can lead to a smarter design process for operations.

Section 4: Developing Your Hazard Mitigation Plan

Developing a hazard mitigation plan can be a very detailed process or you can limit its focus. How detailed you want to be depends on your operation and on how much is at risk. Keep in mind that the best plan is one that actually gets implemented, so be practical. This kind of brainstorming can lead to productive discussion that goes beyond mitigation planning. Look at this as an opportunity to take some time out to learn more about your own operations.

SLIDE 14

The development process has been divided into 8 steps in order to clarify the kind of work that should go into the plan. In actual planning sessions, you may find that it is easier to take individual operations or hazards through all eight steps.

Step 1. Create a planning team
Step 2. List operations and facilities
Step 3. Outline potential hazards and impacts
- natural hazards
- sabotage and terrorism
- unintentional errors

Step 4. List mitigation and response strategies for each hazard
Step 5. Prioritize operations
Step 6. Prioritize mitigation efforts
Step 7. Assign tasks and target dates
Step 8. Acquire resources

SLIDE 15

In these exercises, we will use the example of Pace Manufacturing, which has a facility composed of four buildings. Building 1 is a storehouse for materials to be processed. Building 2 houses vehicles and a workshop. Building 3 is where the materials are processed, and building 4 is shipping/receiving. There is a small office in building 4 where the owner and a clerk work. A total of 25 people work in this business.

Step 1. Create a Planning Team

SLIDE 16

Ideally, your planning team will include individuals familiar with all phases of your operations, however, a planning team of more than 8-10 people can become very difficult to work with. If your operations require the participation

of that many people, you may want to group individuals into subteams. Instruct team leaders in the planning procedure, and let them work with their subteams to develop mitigation plans for their operations. Reconvene team leaders to share the results of their planning and to discuss how to share resources and strategies and avoid needless duplications (sometimes, duplication can be a valuable mitigation strategy in its own right).

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In our example, the owner of the facility decides to put seven people on the planning team:

1. owner
2. clerk
3. storehouse manager
4. vehicle manager
5. workshop manager
6. processing facility manager
7. shipping manager

Step 2. List operations and facilities

SLIDE 18

Once you have a planning committee, bring the members together to list all your operations and facilities. It's a good idea to list suppliers and buyers as well. If a disaster occurs in your area, it may not damage your facility directly, but if it impacts your suppliers, your workers' homes, etc., there will be a direct impact on your business's ability to function.

SLIDE 19

In our example, the owner decides to call the planning committee together on a Friday morning when most of the week's orders have been filled and the managers' time is more flexible. They begin by listing the operations and facilities. Because of the size of this business, there aren't really any surprises, until the processing facility manager brings up waste disposal. He has always been somewhat concerned about the potential for fire in the debris from the processing, which involves some solvents. This causes everyone to look at their own operation a little more closely. Usually everyone is so focused on the product that they don't think that much about the potential hazards of byproducts and wastes. It's never really been an issue. But what if a fire started in wastes from the workshop?

You can use the Hazard Mitigation Planning Worksheets in this booklet with your planning committee to work through the planning process. Provide

worksheets to committee members so that they can analyze their component of your business, or work together to fill out worksheets during a committee meeting.

For the purposes of this action plan, select one or two operations or facilities, and use the worksheets provided in this booklet for steps 2-7.

Step 3. Outline potential hazards and impacts

Our example illustrates that when the planning committee starts to think about the operation in the context of hazards, some new ways of looking at the business can emerge. It shows that there are different ways of approaching these issues.

The key to planning for hazards is to understand impacts, that is, how hazards can affect your operations. In terms of our example, the planning committee can look at this in two different ways. They can start with a hazard and ask what would happen if there were a fire, for instance, in the processing facility. Or they could start with an impact and ask what would happen to their business if the primary processor was broken – and then backtrack to think about what hazards might cause this situation.

In looking for hazards and impacts, think about these three categories and ask yourself some questions:

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1. Natural hazards
   - What is the history of natural hazards in the area where our facility is located?
2. Vandalism, sabotage and terrorism
   - Is there a history of vandalism or sabotage in our industry? In our locale?
   - If someone wanted to sabotage our operation, what is a likely target? What is the easiest target? What target would cause the most damage if it was sabotaged?
   - Thieves can cause damage to facilities, either intentionally or otherwise. What are the likely targets of theft in our facilities, and what damage might an uninformed intruder cause?

SLIDE 22

3. Unintentional situations
   - Are there critical parts of our process that are more likely to cause fires, explosions, etc.? Are there parts of the process that involve

intense heat, high pressure, dangerous chemicals, exposure to disease-causing organisms, etc.?

- What injuries, catastrophes, emergencies, etc. have happened in the past in our business?

SLIDE 23

Returning to our example, the owner of the facility has always been concerned about the fact that all the buildings are attached to each other. His main concern is what would happen in the event of a fire, especially because some highly flammable materials are used in the processing and vehicle buildings. A recent incident that could have led to a catastrophic fire has convinced him to do some formal mitigation planning. He has spoken with the fire department, and based on the remote location of the facility, they have estimated the response time at 22 minutes. Once a fire has been noticed, that is a long time. On the sample worksheet, the owner has worked through this hazard with his planning team. Notice how they have listed the hazard, some consequences and impacts. In terms of operation assets, consider first those things that are not replaceable. You can see that they have not listed property damage because they have insurance that will cover replacement of the vehicles, machines, and structures in case of fire. However, they did have a question about how their insurance would work for them if the facility was destroyed by a wildfire. Insurance often works differently when a natural disaster occurs.

Step 4. List mitigation and response strategies for each hazard

SLIDE 24

For many hazards, your operation may already have mitigation strategies, even something as simple as a fire extinguisher, a first aid kit, or posted escape routes. The planning process is a good time to formalize mitigation steps you have been considering but haven't quite gotten around to. It's also a good time to think about your mitigation budget. What annual outlay is reasonable for your business?

At this point, you may wish to review the Hazard Mitigation Checklist (at the end of this unit) with the participants. This checklist can be useful to suggest some hazard mitigation strategies to them and for them to work through on their own. If you use the checklist during the training session, you can go through it one item at a time and ask participants what their answers are and what their experiences are with that mitigation strategy or the hazard it suggests. When time is more limited, pick only a few items on the checklist to review with the participants.

In the sample worksheet, notice that our planning committee has used the

SLIDE 25

Mitigation/Response Strategies column in a very flexible way to list an upgrade to a system they already have, new equipment, and new procedures. Many mitigation efforts depend on information and are as inexpensive as the time it takes to post the information or spend some time with employees training or discussing procedures.

Step 5. Prioritize operations

SLIDE 26

In a broad planning effort, there would be many planning worksheets, and the committee would probably want to sit down with them and decide in what order they want to work on their mitigation plans. Just a reminder: To be successful, a plan has to be implemented. A lot of work can go into mitigation planning, but a determination to "do it all" can be counterproductive. Better to prioritize and get a few items accomplished. In further planning meetings, the committee can address work that was not done and reprioritize.

SLIDE 27

In our example, the committee has struggled to prioritize its operations. They looked at each operation and asked how long they could run if that operation was severely damaged or destroyed. Even with that understanding, they found that they could not rank manufacturing against business and personnel operations; they ranked both as number 1.

Step 6. Prioritize mitigation efforts

Continuing the prioritization effort, we now consider the individual strategies to decide what must be accomplished first and what can wait. There may be many considerations that go into prioritizing. Efforts that do not cost money but only take time can be high priority items because they can easily be accomplished as time allows. When the work of implementing the strategies is assigned to several people, more tasks can be accomplished at high priority.

SLIDE 28

In our example, we can see all these ideas at work. Several mitigation strategies proposed by the committee involve only time, such as posting information, training employees, and adding a backup procedure to the clerk's weekly routine. Other strategies, such as the fire suppression system, will require research before a system can be purchased – if the research shows that it is a good idea. The top priority for this group is a fireproof cabinet. The ability to maintain business records through a disaster is a good way to reassure clients that their service can be resumed as quickly as

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possible. Businesses with a high transaction rate may want to consider backing up and securing electronic data more frequently than weekly. The question to ask about your electronic data is: how would you reconstruct your electronic records and how long would it take?

Step 7. Assign tasks and target dates

Now that the committee has decided what to do and what to do first, it's time to decide who will do it and when it should be done by. Defining the who and when in the planning meeting makes sure that someone will take responsibility and increases the chances that the work will get done. It also allows the committee to spread out the work fairly.

SLIDE 30

In our example, three committee members have taken on all the tasks, probably because these tasks fall naturally in their work areas. The owner, Tom, is taking responsibility for some larger responsibilities, but the manager of the processing facility, Karen, is going to look into the fire suppression system. The office clerk, Keith, will take care of the strategies that fall in his area. The committee has given itself three weeks to get all of these tasks done. They can schedule a follow-up meeting on June 1 to see if everything went smoothly and the strategies are in place and to hear reports from Tom and Karen on insurance and new fire systems.

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Step 8. Acquire resources

The committee also needs to consider what special resources are needed to allow the strategies to be completed. In many cases, this will come down to money, and the business will have to prioritize strategies that cost money in the order it can afford them. But there are other important resources, such as information, administrative approval, delivery of equipment, etc.

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Section 5: Summary

Mitigation means actions you can take now to reduce the impact of disasters.

Hazard mitigation planning can save your business and your life.

SLIDE 33

The mitigation process has five phases:

- Development of a hazard mitigation plan
- Implementation of the plan

SLIDE 34

- Periodic review of the plan
- Working the plan
- Examination of the plan

Create your hazard mitigation plan in 8 steps:

SLIDE 34

1. Create a planning team
2. List operations and facilities
3. Outline potential hazards and impacts
4. List mitigation and response strategies for each hazard
5. Prioritize operations
6. Prioritize mitigation efforts
7. Assigning tasks and target dates
8. Acquiring resources

Part 5 — Questions and Discussion

Take this opportunity to discuss the unit. Participants may wish to take some time to work through the Hazard Mitigation forms at the end of this unit, or to brainstorm some mitigation strategies.

Part 6 — Post-Test

If you choose to administer the post-test, do so now. You have already prepared the audience for this when you administered the pre-test. Just remind them that it will take only a couple of moments.

Part 7 — Session Evaluation

An evaluation form is supplied in this booklet. Ask participants to take a few minutes to fill out this form, tear it out of the workbook and turn it in. If you allow participants to fill these forms out at home and return them to you at a later time – even later in the workshop – the chances of getting any evaluations are greatly reduced.

Part 8 — Adjourn

Thank the participants for their attention and encourage them to implement the hazard mitigation steps they developed during the training session.

Additional Resources

The Federal Emergency Management Agency (FEMA) has an extensive listing of on-line courses in their "Curriculum for Community-based Pre-Disaster Mitigation." One part of the curriculum is designed for community organizations, and another for emergency managers. These courses allow students to take mitigation planning as far as they want. Find these courses on the Web at: <http://www.fema.gov/tab_education.shtm>.

The Extension Disaster Education Network (EDEN) maintains a Web site and database of resources which mitigation planners may find useful. Access the EDEN Web site at: <http://www.eden.lsu.edu>.

Searching the Web can quickly lead to resources specific to your locale. Many government agencies now have mitigation planning information and local resources available over the Internet.

Developing a Hazard Mitigation Plan— Pre-test

This pre-test is intended to gauge your level of knowledge before participating in the *Developing a Hazard Mitigation Plan* training. Please answer all the following questions to the best of your ability.

1. Select the best definition of mitigation.

___ a. Mitigation means repairing damages caused by a disaster.
___ b. Mitigation means taking actions before a disaster that will help people survive.
___ c. Mitigation means taking actions that will reduce damages if a disaster occurs.
___ d. Mitigation means reducing the likelihood of a disaster.

2. Why is hazard mitigation planning important?

_____
_____
_____

3. What are the five steps involved in a successful hazard mitigation plan?

1. _____
2. _____
3. _____
4. _____
5. _____

4. Only management should be involved in hazard mitigation planning. (Circle one.)

True or False.

5. Why is it important to constantly monitor progress with a hazard mitigation plan?

_____
_____
_____

Developing a Hazard Mitigation Plan— Post-test

This post-test is intended to gauge your level of knowledge after participating in the *Developing a Hazard Mitigation Plan* training. Please answer all the following questions to the best of your ability.

1. Select the best definition of mitigation.

___ a. Mitigation means repairing damages caused by a disaster.
___ b. Mitigation means taking actions before a disaster that will help people survive.
___ c. Mitigation means taking actions that will reduce damages if a disaster occurs.
___ d. Mitigation means reducing the likelihood of a disaster.

2. Why is hazard mitigation planning important?

_____
_____
_____

3. What are the five steps involved in a successful hazard mitigation plan?

1. _____
2. _____
3. _____
4. _____
5. _____

4. Only management should be involved in hazard mitigation planning. (Circle one.)

True or False.

5. Why is it important to constantly monitor progress with a hazard mitigation plan?

_____
_____
_____

Developing a Hazard Mitigation Plan— Answer Key

1. What is mitigation?

   c. Mitigation means taking actions that will reduce damages if a disaster occurs.

2. Why is hazard mitigation planning important?

   Hazard mitigation planning can reduce loss of life or property and help assure continuity of operations in the event of an emergency or disaster.

3. What are the five steps involved in a successful hazard mitigation plan?

   1. Development of a hazard mitigation plan
   2. Implementation of the plan
   3. Periodic review of the plan
   4. Working the plan (in case of an incident)
   5. Examination of the plan (after an incident)

4. Only management should be involved in hazard mitigation planning. True or False.

   False. Employees can have very valuable input into mitigation planning. They are also the ones who are ultimately going to carry it out and make it successful.

5. Why is it important to constantly monitor progress with a hazard mitigation plan?

   It is important to constantly monitor mitigation planning progress because it must be evaluated periodically to make sure revisions can be made as needed.

Participant's Evaluation of *Developing a Hazard Mititgation Plan*

Please circle the number that best expresses your opinions for each of the following statements. Circle only one number per question for questions 1 through 4.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	The training unit's format was easy to follow.	1	2	3	4	5
2.	The information presented is useful to me.	1	2	3	4	5
3.	The time it took to complete the training session was acceptable.	1	2	3	4	5
4.	As a result of this session, I have a better understanding of hazard mitigation planning.	1	2	3	4	5

5. We welcome your comments about this program:

_____

_____

_____

_____

_____

Please use the back of this sheet for any further comments.

Thank you for your time!

Hazard Mitigation Planning Worksheet 1

Step 1: Create a Planning Team

	Individual	Knowledge Areas
1.	_____	_____
		_____
2.	_____	_____
		_____
3.	_____	_____
		_____
4.	_____	_____
		_____
5.	_____	_____
		_____
6.	_____	_____
		_____
7.	_____	_____
		_____
8.	_____	_____
		_____
9.	_____	_____
		_____

Hazard Mitigation Planning Worksheet for Example Operation

Operation or Facility:				Date	
Hazards/Impacts	Mitigation/Response Strategies	Priority	Assigned to	Resources Required	Target Date

Hazard Mitigation Planning Worksheet for Example Operation

Operation or Facility:				Date 4/28	
Hazards/Impacts	Mitigation/Response Strategies	Priority	Assigned to:	Resources Required	Target Date
Fire	Alarm system that notifies fire department and owner (Upgrade current alarm system)	2	Tom	Business loan	5/7
	Fire suppression system (research this and present options to committee)	3	Karen		5/14
Destruction of business records	Backup computers on a weekly basis		Keith	Backup system and software	5/7
	Get fireproof cabinet for storage of critical records and computer backups	1	Keith	Storage unit	5/14
Wildfire	Check with insurance company about wildfire coverage		Tom		5/7
	Review evacuation with employees		Tom		5/21
	Post fire response information in all buildings		Keith		5/7

Hazard Mitigation Checklist

Emergency Communications

____ Do you have a contact system, such as a telephone tree, to notify all employees in an emergency?

____ Do you have a way to contact next-of-kin for every employee?

____ Is an automated emergency notification system (for example, via Web site, e-mail, telephone, or radio) appropriate for you?

____ Do you have a manual for emergency policies and procedures?

____ Are employees aware of the manual and have they been trained in the policies and procedures?

____ Do your employees receive a safety orientation when they are hired and periodic safety training and drills?

Facility Security

____ Do you review your insurance coverage periodically?

____ Do you have inventory safeguards, especially for hazardous materials?

____ Do you conduct periodic building and property inspections?

____ Do you have policies and procedures controlling who can access your facilities?

On-site Emergency Resources

____ Are first aid kits, water, tool kits and other emergency supplies readily accessible?

____ Do you periodically inspect and update fire and gas detectors and extinguishing systems.

Dealing with Vendors

____ Do you know your vendors? Do they conduct background checks on employees?

____ Do your contracts include security requirements and safeguards?

Records and Computer Operations

____ Are all essential records backed up and stored in remote locations.

____ Do you change system passwords periodically, at least twice a year?

____ Do you delete obsolete addresses and accounts from the corporate network?

____ Do you maintain current antivirus and antispyware software?

____ Do you have security policies for hardware, software and network assets?

Contact Numbers for Emergency Service Providers

Law Enforcement	Local Police _____ _____ Local Sheriff _____ _____ State Police _____ _____ FBI _____
Fire	_____
Emergency Medical Services	_____
Utilities	Electrical _____ Gas _____
Other Services or Suppliers	_____ _____ _____ _____ _____ _____

PowerPoint Slides 1-3

Agrochemicals and Security

Developing a Hazard Mitigation Plan

Learning Objectives

As a result of this session, participants will:

- Understand the meaning of "mitigation"
- Understand the value of hazard mitigation planning
- Understand the hazard mitigation process
- Understand how to develop a hazard mitigation plan
- Prepare a partial hazard mitigation plan

Hazard + Mitigation

Hazard – potential source of personal injury or property damage

Mitigation – taking actions to reduce negative impacts

PowerPoint Slides 4-6

Mitigation Strategies

- Environmental solution
- Information
- Engineering solutions
- Behavior-based solutions
- Human factors solution

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-04

Prevention/Mitigation Strategies: Car

1. Prevent collisions
   - Traffic laws, marking and lighting systems for roads and cars…
2. Build tougher cars
   - Impact-resistant body panels, shock absorbing bumpers…
3. Passenger restraint systems
   - Seat belts, airbags, automatic door locks…
4. Safer car interiors
   - Padded dash and steering wheel, headrests…

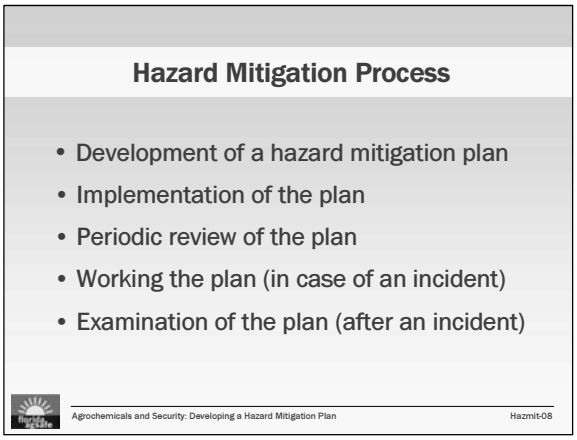
Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-05

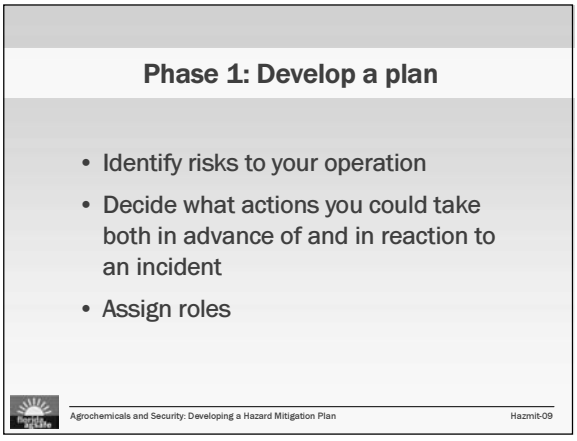
Extreme Hazards: Explosion

- List hazards created by an explosion
- What steps could you take to reduce:
  1) The possibility of an explosion (Prevention)
  2) The damage to life and property should an explosion occur (Mitigation)

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-06

PowerPoint Slides 7-9





PowerPoint Slides 10-12

Phase 2: Implement your plan

- Acquire resources required by the plan
- Train workers to fulfill roles
- Rehearse components of the plan
- Explain the importance of the plan

Phase 3: Periodic review of your plan

- Meet at least annually to consider if changes are needed in the hazard mitigation plan
- How has your operation changed since the last meeting?

Phase 4: Working the plan

When an emergency occurs, you will learn quickly how thorough and effective your hazard mitigation plan is.

PowerPoint Slides 13-15

Phase 5: Evaluating the plan

Meet after every event to consider if the plan worked.

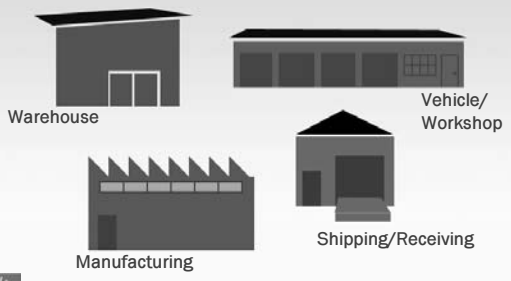
- Was the event covered adequately by the plan?
- Did workers understand their responsibilities during the event?

Developing Your Hazard Mitigation Plan

Step 1. Create a planning team
Step 2. List operations and facilities
Step 3. Outline potential hazards and impacts
- natural hazards
- sabotage and terrorism
- unintentional errors

Step 4. List mitigation and response strategies for each hazard
Step 5. Prioritize operations
Step 6. Prioritize mitigation efforts.
Step 7. Assigning tasks and target dates
Step 8. Acquiring resources

Pace Manufacturing

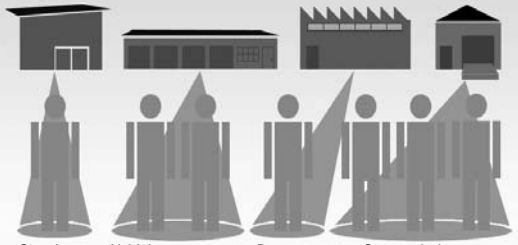


PowerPoint Slides 16-18

Step 1: Create a Planning Team

- Select individuals from all phases of your operations
- Aim for 8-10 members
- Create subteams for specialized situations
- Subteams follow Steps 2-7 of the planning process

Pace creates a planning team



Storehouse manager | Vehicle manager, Workshop manager | Process manager | Owner, clerk, Shipping manager

Step 2: List Operations and Facilities

- In the case of an event that affects a large local area, consider buyers, suppliers, utilities, and workers' homes
- Consider byproducts and waste materials

PowerPoint Slides 19-21

The Pace planning committee lists its operations and facilities

Facilities	Special needs
Manufacturing	Chemicals for process 1 (non-hazardous but expensive)
Warehouse	Chemicals for process 2 (highly flammable)
Vehicle maintenance and repair	Acetylene
Workshop/fabrication	
Front Office	
Access road?	
Back-up generator?	

Step 3: Outline Potential Hazards and Impacts

1. Natural hazards
   - What is the history of natural hazards in the area of your facility?
   - If a natural disaster occurred, what aspects of your operation would be most affected?

Step 3: Outline Potential Hazards and Impacts

2. Vandalism, sabotage, and terrorism
   - Is there a history of vandalism or sabotage in your industry? In your locale?
   - What is the likeliest target of sabotage? The easiest? The most critical?
   - What damages could an uninformed intruder cause?

PowerPoint Slides 22-24

Step 3: Outline Potential Hazards and Impacts

3. Unintentional situations
   - Which parts of our process that are likely to cause fires, explosions, etc.? Parts that involve intense heat, high pressure, dangerous chemicals, exposure to disease-causing organisms?
   - What injuries, catastrophes, emergencies, etc. have happened in the past in our business?

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-22

The Pace planning committee considers potential hazards and impacts

Hazards/Impacts

- Fire (had a near miss; fire dept – long response time)
- Destruction of business records (a lot of it is electronic)
- Wildfire (because of location and bad fire seasons)
- What could shut down the access road?

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-23

Step 4: List Mitigation Strategies for Each Hazard

Key: What can you do ***now*** that could keep your operation running or get it going again as quickly as possible?
- Strategies in place for the hazard?
- Upgrade existing strategies?
- Alternatives for each process in your operation?
- Need documentation and training?

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-24

PowerPoint Slides 25-27

The Pace planning committee focuses on the fire hazard

Hazard/Impact	Mitigation/Response Strategies
Fire	• Alarm system that notifies fire dept. and owner (Upgrade current system • Fire suppression system (research this and present options to committee)

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-25

Step 5: Prioritize Operations

- Think "business continuity."
- Balance how critical an operation is against how good an alternative you can find.

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-26

The Pace planning committee prioritizes operations.

1. Business and personnel operations Manufacturing operations
2. Shipping/Receiving
3. Vehicle maintenance/repair
4. Warehousing

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-27

PowerPoint Slides 28-30

Step 6: Prioritize Mitigation Efforts

- Estimate costs of specific efforts.
- Balance cost of mitigation efforts against how critical an operation is.

The Pace planning committee prioritizes mitigation efforts

Hazards/Impacts	Mitigation/Response Strategies	Priority
Fire	Alarm system upgrade	2
	Fire suppression system	3
Destruction of business records	Backup computers weekly	
	Fire-proof record storage	1
Wildfire	Current wildfire insurance coverage?	
	Review evacuation with employees	
	Post fire response info in all buildings	

Step 7: Assign Tasks and Target Dates

- **Specific assignments and target dates help assure that work will get done**

PowerPoint Slides 31-33

The Pace planning committee assigns tasks and target dates

Hazards/ Impacts	Mitigation/ Response Strategies	Priority	Assigned to:	Resources Required	Target Date
Fire	Alarm system upgrade	2	Tom	Business loan	5/7
	Fire suppression system	3	Karen		5/14
Destruction of business records	Fire-proof record storage	1	Keith	Storage unit	5/14

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-31

Step 8: Acquire Resources

Think about "resources" in broad terms:

- Money, budgetary authority
- Information, data
- Administrative approval

Acquisition can be affected by delivery times, installation requirements, etc.

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-32

Summary 1

Mitigation means actions you can take now to reduce the impact of disasters.

Hazard mitigation planning can save your business and your life.

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-33

PowerPoint Slides 34-36

Summary 2

The mitigation process has five phases:

- Development of a hazard mitigation plan
- Implementation of the plan
- Periodic review of the plan
- Working the plan
- Examination of the plan

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-34

Summary 3

Create your hazard mitigation plan in 8 steps:

1. Create a planning team
2. List operations and facilities
3. Outline potential hazards and impacts
4. List mitigation and response strategies for each hazard
5. Prioritize operations
6. Prioritize mitigation efforts
7. Assigning tasks and target dates
8. Acquiring resources

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-34

Agrochemicals and Security: Developing a Hazard Mitigation Plan

Questions and Discussion

Agrochemicals and Security: Developing a Hazard Mitigation Plan Hazmit-36

PowerPoint Slide 37