



Creating a flood emergency response plan



A well-organized flood emergency response plan can make a difference

Do not underestimate the impact you can have on reducing the potential damage and disruption to your business if flooding occurs.

There are countless examples of employees taking impromptu steps that have reduced potential damage and disruption during a flood emergency. Formal advanced plans, such as a flood emergency response plan, have the advantage that those involved are aware of the most important steps to take, and have adequate resources on hand.

What is unique to planning for flood is that, by understanding the event to which you

are exposed, you can factor in warning times that do not exist in many other emergencies. This is the key to an effective flood emergency response plan.

Before developing a plan, take a hard look at equipment and/or processes in your basement or other low-lying areas. Relocating this key equipment and/or processes to higher levels has a major- and permanent-impact on your potential loss should flooding occur, and does not rely on human intervention in the event of a flood.

Protecting your property

There are steps you can take to protect your property from the ravages of flood, but, remember—emergency actions to protect your property from flooding are very different from the actions needed in case

of fire. Flood emergency actions need time to be put into place. By taking the time to understand the potential flood event that could affect your facility, you can make good use of what warning time is available, however limited. And, if the potential flood event affects a wide area, make sure you consider the impact to resources you might otherwise use, such as contractors and emergency agencies. FM loss history has shown that facilities with well organized flood emergency response plans have nearly 70% less damage, and resume operations sooner than those locations without a flood emergency response plan, or an inadequate one, in place. The key to success? Spending an adequate amount of time developing a flood emergency response plan prior to the flood.



Warning time may be limited, but an effective flood emergency response plan can help prevent your organization from experiencing unnecessary property damage and business interruption.

Consider taking the following steps:

- Make sure you understand the potential flood events to which your site is exposed. It is critical to know how much time you will have to put your plan in place. Important aspects include warning time, how fast the water will rise, and how long it will last. This is where your FM engineer can help you.
 - Ensure you have a reliable method of flood warning.
 - Flood predictions for large rivers can give a few weeks' warning.
 - With tropical storms, hurricane tracking gives an indication a few days ahead, but, typically, provides 12 to 24 hours' specific notice.
 - With small streams, there may be very little warning time—the best resource may be the local weather forecast.
 - Establish the potential impact to your business (e.g., what operations will be affected, what level of damage will be involved, etc.). Your local FM engineer can provide assistance.
 - Identify any potential changes you could make to your facility to permanently reduce the impact of flood:
 - Use permanent FM Approved barriers to keep water out
 - Raise key equipment above expected flood levels
 - Establish effective emergency actions:
 - Use FM Approved temporary barriers
 - Move high-value stocks and supplies
 - Move portable high-value equipment
 - Make sure you know how long the plan will take to put into effect. It's essential to balance available warning time and resources to your expectations. Try to organize actions into individual steps, so each one has some benefit and you don't need 100% compliance for your flood emergency response plan to be effective. If your flood emergency response plan revolves solely around keeping water out, you may only have one chance to take precautions.
- It's unlikely you can close flood doors or build sandbag barriers once the water starts coming in.
- Be alert to the resources available day and night, and make sure all time periods are adequately covered.
 - Have adequate resources available to clean up, to start drying out wet areas, and to return operations back to normal once floodwaters recede.
 - Formalize your flood emergency response plan in writing, dry-run the entire plan and conduct regular training exercises.
 - Where possible, develop contingency plans, taking advantage of make-up capacity at "sister" operations, sub-contract capabilities or other possible alternatives.
- Remember, it's important to develop a flood emergency response plan for your specific facility. Don't adopt a plan that's been prepared for another facility within your organization or for a neighboring facility—your plan must reflect local conditions and be governed by the contents, equipment and construction of your facility.

The “ultimate” authority

As you prioritize actions, be sure to evaluate the business impact of each step. Actions that do not affect normal business activities are easy to implement with right resources needed.

Once your plan starts to affect your business, establish the most appropriate level of authority necessary to shut down your facility. Do not underestimate the challenge this presents—the success of the entire plan is to work ahead of the flood, so you are reliant on flood-warning information.

Taking action can lead to disruption. After all, there always is the chance that predictions are wrong and the flood may not occur. By truly understanding the potential flood event, as well as the nature of the warning and timing, you will be able to determine a “point of no return” after which your plan will not have time to work. This may be the most critical part of the plan, so it’s essential that management is aware of the

implications, supports the plan, and agrees as to who has the authority to put the plan into place—regardless of the immediate business implications.

Only one piece of the puzzle

While a well-developed flood emergency response plan can be effective, you can have a great impact by taking some physical steps to protect key parts of your business. Where possible, relocate key processes and/or material from basements and low-lying areas to other parts of your facility at elevations higher than the expected flood. If this is not practical, consider protecting individual areas and/or equipment by:

- Blocking or waterproofing window openings;
- Installing flood doors that can easily be put into place;
- Creating permanent or portable barriers around critical equipment;
- Securing rack structures

Don’t have a flood emergency response plan?

It’s important to take the time to develop a comprehensive flood emergency response plan. In the meantime, however, you can put into place some basic procedures that will make a difference, such as following normal equipment safety shutdown procedures, and isolating electrical and flammable-liquid/gas equipment.

For help with developing a flood emergency response plan or with any of the steps outlined here, contact your local FM engineer or client servicing representative.

A well-planned flood emergency response plan should include:

- One person who has the ultimate authority to activate the flood emergency response plan and redirect production resources and, ultimately, shut down operations, if necessary
- Procedures to safely shut down equipment and isolate electrical equipment
- Procedures to raise and/or relocate key equipment and material
- Plans to prevent water from entering key areas and/or entire buildings
- Plans to take care of employees and their families, if the flood fight is prolonged
- Reliance on those employees whose homes are unlikely to be affected by the same flood
- Inclusion of post-flood repair and business-recovery plans
- Regular training procedures
- Revisions as changes occur (e.g., personnel and business activities).



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You can protect your property from flood if you are building a new facility or adding on to an existing one. Here are some guidelines:

If you are building a new facility:

- Don't build near a flood zone
- If you are near a flood zone, ask a hydrologist to review available information and conduct a study to determine the exposure. (FM engineers can help interpret the study and review your site design for flood exposure)
- Avoid storing valuable equipment and/or materials below grade
- Avoid locations that rely upon access/transportation routes that are in a flood zone
- Avoid relying on utilities in a flood zone

If you are adding on to an existing facility:

- Build above the predicted flood level
- Avoid below-grade spaces
- Flood-proof exterior walls and doors
- Use FM Approved flood doors or flood planks to keep water out
- Elevate key equipment, electrical controls and process equipment
- Limit in-process and finished storage
- Update your flood emergency response plan

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