

A response plan should thoroughly consider personnel, communication, administrative, facility and supply issues that are critical before, during and after a storm

Effective Emergency Response Plans Protect Mills from Hurricane Losses

By **DAVID JOHNSON, RUSSELL COX** and **SCOTT CRYSEL**

Whether producing or converting pulp and paper, life can become a bit precarious from the beginning of June until the end of November for facilities located in hurricane prone regions of North America. This article highlights practices that pulp and paper facilities can follow to help protect them from catastrophic property damage and production interruption.

When natural disasters like a hurricane or another type of windstorm threaten the value a company brings to the marketplace and its customers, having a solid, well-prepared action plan can make the difference between a minor interruption and a major disruption to business. This article looks at the importance of a well-organized emergency response plan (ERP) as it relates to personnel, communication, administrative, facility and supply issues that are critical before, during and after a storm.

The Cost of Complacency

Consider a situation where a severe hurricane is moving rapidly toward a mill, threatening to strike within the next 24 to 48 hours. Envision downed power lines and fallen trees littering the ingress, egress and perimeter of the mill. Soaking rain accumulates and turbulent wind hurls debris, tearing at the mill's infrastructure. With only a skeleton crew left behind and no public power, production stops. Are all mills in hurricane prone areas prepared to weather such a storm?

After just nine named storms formed in the Atlantic Ocean last year, with none making landfall in the US, the potential destruction that a hurricane can cause may not be as nagging as ever increasing energy and raw material costs or finding enough money for capital projects and process improvements. However, the cost of complacency surrounding one of the most frequently occurring and most destructive natural disasters facing pulp and paper mills can come with a \$3 million price tag, on average, per incident, according to a recent 20 year hurricane study by FM Global, a commercial and industrial property insurer of pulp and paper companies.

If the financial ramifications of hurricane damage are not convincing enough, the US National Weather Service's forecast called for "a busier than normal hurricane season" in 2007. It is

expected that 13 to 17 tropical storms will form, with seven to 10 of them becoming hurricanes.

Importance of a Detailed Response Plan

It is impossible to stop the high wind and driving rain a hurricane brings, but with proper planning and preparation, the scope of devastation and production downtime is controllable. When a detailed plan has been outlined and practiced in advance, decisions are then more easily made during a hurricane. A well organized ERP can help to:

- Protect the integrity of building envelopes and restore normal operations quickly and effectively
- Prevent, or at least minimize, costly downtime and severe property damage
- Enable good use out of what warning time is available before a storm hits, however limited that is

Preplanning Ensures Effectiveness

The success of an ERP, however, largely depends on thoroughly assessing mill needs, such as local conditions, construction and contents, before a storm hits. It also depends on how well documented and implemented the overall emergency response effort is. Merely adopting a plan that has been prepared for another mill or plant within your company, or for a neighboring facility, would be counterproductive, as every facility has unique characteristics to consider.

The following sections highlight checks that can be used to challenge the ERP plans already in place prior to an impending storm.

Check 1 – Personnel: It is critical that a mill has an emergency response team (ERT) whose members are voluntarily willing to stay on site during a hurricane (as conditions permit). Team members should have skills that can be useful before, during and after a storm, and they must be properly trained on the mill's emergency response procedures. Each ERT member (and alternate team member) should have current contact information for the other team members.

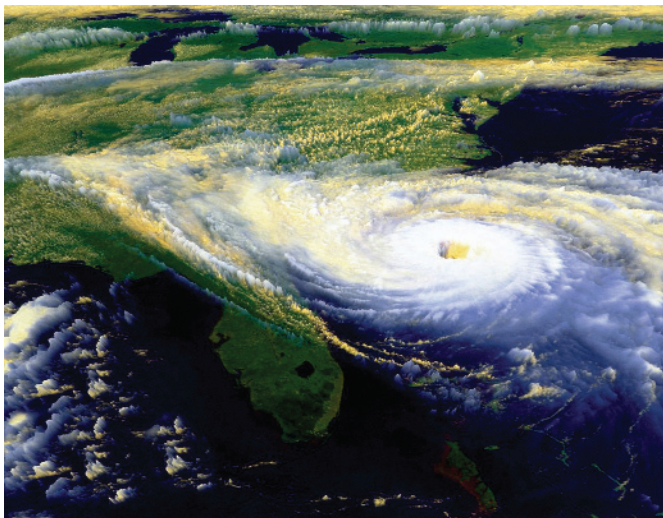
The mill should identify and assign a qualified ERT leader. The leader needs to be a manager of safety, maintenance or the mill itself, as this individual typically has a good understanding of the facility and its safety requirements, as well as the organi-

zational and communication skills necessary to effectively delegate responsibility and implement an ERT.

Yet another critical position is that of a weather monitor. This person reports weather conditions and keeps the ERT leader up to date on impending conditions.

In addition to creating an ERT, the mill should develop pre-determined checklists for each stage of the storm and distribute them to operational managers by area of responsibility (eg power and recovery, pulping, woodyard, paper machine, warehousing and administration operations) or job type (eg electricians, mechanical trades and maintenance). These managers should complete the checklists for their particular area.

The US National Weather Service has predicted an active hurricane season for 2007, and mills in storm prone areas should have effective response plans in place.



Check 2 – Communication: For the ERT, reliable internal communication methods, such as on site two-way radios, and external communication methods, such as satellite phones, should be in place as part of an ERP.

Also, in case facilities become unusable following a major windstorm, the mill should designate an off site emergency communications control center, such as a hotel meeting room, just outside the windstorm area.

Check 3 – Administrative: Before a storm approaches, vital company records should be identified as part of the ERP, as well as plans for relocating and protecting this information.

In addition, local emergency preparedness authorities need information on the ERP. On the flip side, the mill needs to understand the local emergency action plan.

Local contractors are often overcommitted after a storm, so it is important to make agreements with contractors outside potential windstorm areas for supplies and repairs.

Check 4 – Facility: An ERP should stipulate that all mill facilities stay in good repair (roof coverings, drains, flashing, gutters, etc) at all times. Large trees that might fall and damage power lines, fire pump houses and communication lines must be removed.

Because massive amounts of rain will likely fall, flooding low-lying sections of the mill site if drains or catchments are clogged, the plan must call for cleaning of drainage systems and catch basins.

It is also important to store items located both inside and outside of mill facilities as safely as possible. This includes product, high value stores and auxiliary equipment.

Check 5 – Supplies: The mill’s emergency power supply needs (blackstart capability, emergency lighting, HVAC equipment, refrigeration, etc) must be analyzed to determine how much emergency power is needed to restart critical operations. It is also important that an ERP identify vendors who can provide emergency generators.

Mills should stay stocked with brace/anchor yard storage, signs, cranes and roof-mounted equipment, as well as a practical amount of pre-fitted windstorm shutters and/or plywood sheets for windows and doorways. An ample supply of sandbags, brooms, squeegees and absorbents to prepare for windstorm related flooding is also essential.

As the Storm Approaches

When a mill learns that a hurricane strike is imminent, it is time to put the preplanning into action, as this will likely be the last opportunity to coordinate any final efforts to prepare personnel and protect facilities in advance of the storm.

When predictions indicate the storm is approaching the mill site, compare the following checks with the preplanning process that has been executed as part of the thorough ERP outlined in the previous section.

Check 1 – Personnel: Institute regularly scheduled meetings in which the hurricane monitor and ERT leader can keep management informed of the storm’s path and progress, as well as the status of emergency actions taken. If necessary, have employees conduct safe shutdown of operations in an orderly manner, following established safety procedures. This should include noncritical and nonessential electrical equipment.

Check 2 – Communication: Test all necessary communication devices to ensure they are in good working condition, including batteries and portable emergency generators.

Check 3 – Administrative: Protect or relocate vital records to the areas designated as part of preplanning in the ERP. Have adequate cash on hand for post-storm needs, such as buying food and supplies, or paying employees and contractors.

Notify local emergency preparedness authorities that the

mill's hurricane ERP has been activated and coordinate activities accordingly. Also, confirm with all necessary contractors outside the storm area that arrangements are in place for them to provide supplies and repair services after the storm.

Check 4 – Facility: Inspect all fire protection equipment, such as sprinkler control valves and fire pumps, to make sure it is ready to operate. Secure loading dock doors and store flammable liquid drums.

In a storm, flying objects cause heavy property damage, so remove all loose debris and relocate yard vehicles, finished stock, supplies and nonessential equipment to secure indoor areas. For additional protection, install storm shutters/plywood over windows and doors.

Also, anchor all roof-mounted equipment, such as HVAC units and exhaust vents, to the roof deck support assembly (eg the joists), and portable buildings (eg trailers) to the ground. Secure log yard cranes and ensure outdoor signs are properly braced to minimize any damaging debris.

To minimize fire hazards and flame sources, shut off natural gas and/or propane, including boiler burner systems, building heaters, etc. This excludes essential emergency or power generation equipment.

Electronics are especially susceptible to water damage, so protect any high value control and computer rooms that may be exposed if the building envelope is breached with tarpaulins and waterproof covers.

Check 5 – Supplies: Ensure all ERT personnel who will remain on site during the storm are adequately equipped with the proper supplies and equipment (potable water, nonperishable food, medical supplies, flashlights, walkie-talkies, batteries, portable toilets, etc).

In addition, make sure diesel fuel tanks for emergency generators and fire pumps are full.

Actions During the Storm

When winds reach hurricane force, the ERT will likely be hunkered down, riding out the storm in a secure area of the mill. As conditions permit, however, members of the ERT can:

- Patrol the property and watch for roof leaks, pipe breakage, fire or structural damage
- Constantly monitor any boilers that must remain on line
- Turn off electrical switches during a power failure to prevent reactivation before necessary checks are completed

After the Storm Passes

After the storm passes, there will likely be cleanup and repairs, both inside and outside of mill facilities. To ensure all post storm needs are considered, the following checks can be compared with what your ERP has in place.

Check 1 – Personnel: Keep employees up to date on the

status of mill operations. The use of a toll-free call in number is a good method of communication.

Touch base frequently with those employees at the mill during cleanup and restart to make sure their personal needs are attended to (eg food, water, rest, etc).

Check 2 – Communication: Contact key personnel and notify contractors to start any necessary repairs. Also, require contractors to share responsibility for establishing fire safe conditions before and during the job, especially hot work.

Check 3 – Administrative: Contact your property loss control services, insurance provider and/or in-house risk management department for assistance in restoring fire protection and reporting any physical damage to the mill.

Check 4 – Facility: Secure the site and assess for damage. Survey for safety hazards, such as live wires, leaking gas or flammable liquid. Also, look for damage to foundations or underground piping, and conduct security watch rounds.

To prevent fire, perform roving fire watch rounds. Repair damage to the automatic sprinkler systems and other fire protection systems, and restore service as soon as possible.

To prevent further damage, begin salvage operations. Immediately cover broken windows, wall panels and torn roof coverings. Separate damaged goods from salvageable goods, and clean roof drains and remove debris from roofs to prevent drainage problems.

Check 5 – Supplies: Ensure there are ample critical supplies. The need for certain items (eg spare batteries, food, potable water, portable toilets, etc) may have been underestimated during the preplanning stage.

Updating the Mill ERP

Once hurricane season is officially over, it will not be long before the next one begins. While the subject is still in mind, it is a good time to give the mill's ERP a review, stepping back to:

- Evaluate how effective the plan was during the season
- Identify weaknesses in the plan
- Determine what modifications need to be made
- Ascertain where refresher training would be useful
- Determine when during the off-season is a good time to conduct a dry run of the ERP

To ensure the plan is ready, one last look approximately 30 days prior to the start of the next hurricane season (May 1) is helpful. This is also a time to make sure ERT members are educated and refreshed on any changes made to the ERP. **P&P**

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