



## Severe Winter Weather Emergency Response Plan

Texans are good at preparing for tropical storms, hail, tornadoes, floods, and even the occasional ice storm or light snow. But what about the February 2021 Deep Freeze when temperatures were below freezing for 154 hours straight in some places, record snowfall blanketed huge swathes of Texas and water and power were out for days? Were we ready for this? A lot of people, towns, utilities, and governments weren't. Most people in Texas had never experienced this kind of winter weather in their lifetimes. Most water districts hadn't either.



*Lakeway, Texas, photo by R. Wigzell*

As a consequence of the storm, millions of Texans were without power for various periods of time. Water pipes, big and small, froze solid and people got cold. In fact, over 700 died during the storm, many from cold exposure that exacerbated underlying medical conditions. In the aftermath of the storm the State of Texas, ERCOT (the state's power

grid operator), utilities and local governments are still struggling with measures to prevent future calamities like the Freeze of 2021. Although the Fund can't predict future events like this, we can make some recommendations that will help mitigate the impacts felt last winter.

The first step in dealing with a winter weather emergency is awareness. Just as we advise about approaching tropical storms, each district should keep close tabs on weather forecasts during the winter. Although this storm was possibly a once in a lifetime event, the National Weather Services issued its first winter weather advisory on February 10<sup>th</sup>, and then subsequent winter weather warnings across the state. Local television and radio stations also added to awareness of the approaching storm but even those warnings left little time to make significant preparations. So, the real key is preparation in advance through an Emergency Response Plan for severe winter weather.

A good emergency response plan for cold weather includes these basic elements:

- A statement of purpose of the plan,
- A pre-event planning guide,
- Mitigation strategies,
- Recovery, and
- Post event review and plan revision.

The purpose of the Freezing Weather Emergency Response Plan is to “outline the actions to be taken before, during, and after” a freezing weather event. These actions should prepare the district for the onset of freezing weather, provide for damage prevention and life safety during the event, and help the district get back in business for the benefit of its clients after the event is over. As we saw in February, the lingering effects of damage to businesses, homes, communities, and local governments lasted long after the temperatures warmed.

The two most damaging impacts from the freeze were the loss of electricity and the loss of water caused by frozen pipes, usually as a result of power loss. The Risk Management Fund members experienced 59 claims from 10 different members. As of December 2021, amounts paid thus far and remaining reserves for claims still open total approximately \$550,000. Most of the claims were the result of water damage after the weather warmed up enough to thaw out frozen pipes.

Although this is anecdotal in terms of the Fund, it does help focus planning efforts for “before, during, and after” the event. The first planning step is to identify parts of the water supply system at risk from extremely low temperatures. Where are the pipes? Are they insulated or open to ambient air like in some pump stations, attics, or outside walls? Can the water be shut off or drained? How do you protect automatic sprinkler systems? Only trained staff should respond to a sprinkler system's waterflow alarm. Part of the planning process is identifying vulnerable piping and where shut off valves are on drawings that will help staff members locate potential leaks. Remember that fire protection sprinkler systems cannot be disabled unless there is an active leak.

Another step is to supply heat or insulation where exposure to low temperatures could cause freezing. Some water districts experienced freezing in their system because rolling blackouts caused a loss of power in pump stations. Only urgent appeals to the power company got the power back on in time to save the system from disastrous damage. Although many pump station buildings are uninsulated, portable heaters might help prevent freezing where pipes are exposed above ground when water is not flowing due to power outages.

Once you've identified vulnerable areas you should engage in scenario projections. What damage could occur if pipes freeze? How would operations be impacted without water or power? What can we do to prevent damage and disruption? With power, heat in the building is the best preventive measure. Without it the game changes significantly. Portable heaters that operate without electricity may not be safe for interior use. Heaters should be equipped with a tip sensor for automatic shut off if the heater is tipped over. Fire extinguishers should be located nearby. Exhaust gas from the heater may accumulate to dangerous levels in enclosed spaces.

For each scenario, plan the response and gather the supplies and tools needed. The Emergency Response Plan has a list of materials and tools that might be useful. Also, on the list should be additional facilities or organizations that could help you continue operations or recover from the freeze event.

Arranging for equipment rental or leasing before an event can insure that generators, portable heaters, or pumps are available when you need them. A link to the TWCARMF website is [twcarmf.org](http://twcarmf.org) and the [Emergency Response Plan](#) is located in the [Resources](#) section.

The first part of this article has been emergency preparedness planning but there have been some other lessons learned from the February freeze. One of them was the necessity for notifying a district's power provider of the need for continued power supply for the delivery of water to its customers. One district was cut off from power by the local power company doing rolling blackouts that did not know they were endangering water supplies for thousands of households. Frantic phone calls restored the power, but the incident illustrates the need to inform power companies and develop contacts with them. It was necessary for a "Critical Infrastructure Form" to be filed with the power company. There was a notification process several years before the freeze, but it was not widely publicized. Electric utilities have the forms. This process puts your district on their list of critical infrastructure for which they will maintain electrical service except under extraordinary circumstances.

Another lesson from the storm was the extremely difficult working conditions that affected district employees as they struggled to keep water flowing or deal with leaks caused by freezing. In one instance an employee slipped into a hole filled with water and ice while working to repair a leak. The hole was deep enough to submerge him fully. He survived the immersion because another worker nearby saw what happened and was able to pull him out. Had he been working alone the incident might have had a very tragic result.

Snow, ice, and extreme cold all have a drastic effect on a person's ability to work safely. Cold weather precautions are important when daily high temperatures may not exceed freezing. Layered clothing, gloves, hats, warm footwear, plenty of fluids, and the ability to stay dry and get warm, all contribute to safer working conditions. Simple plastic crampons are also available that can be slipped on over shoes or boots to improve traction on ice and snow. Sand and salt mixtures should be available for parking areas, building entrances, walkways, and outside steps to improve traction and prevent falls. Shovel snow off walkways, steps, and entrance areas then apply the sand and salt mixture.

Some districts had difficulty driving to places that needed repairs. The best advice is not to drive at all unless there is an emergency. Tips for winter driving were discussed in the [Fall Risk Advisor](#).

The Fund's Risk Control Consultants can help you prepare an Emergency Response Plan for severe freezing weather and advise about dealing with winter working conditions.