



## TIP SHEET

# COLD WEATHER

This checklist should be tailored to processes/operations; freeze protection; snow removal equipment; and winter freeze, ice and snow potentials at each specific plant. The time required to complete each item should be determined in advance to allow proper planning.

## Action to take before the cold weather season

### Section A – Plant Management/Emergency Organization

- Develop a Cold Weather Emergency Response Team as part of the Plant Emergency Organization.
- Prepare, or locate, and maintain a scaled plan or diagram of the facility which clearly shows the location of all fire protection and other emergency equipment.
- Pre-qualify and pre-commit as many repair, service, and snow removal contractors as possible, including both local and national firms.
- Obtain multiple suppliers for critical building components, equipment, and stock necessary to resume operations/business.
- Obtain the home telephone numbers of executives of all committed contracting firms, utilities, and other services critical to resumption of operations.
- Establish good credit with service providers, suppliers, and contractors. Good credit and cash speak loudly in difficult times.
- Establish and maintain good relationships with local police and fire departments.
- Understand your energy needs and make arrangements for backup utilities and fuel sources where possible. Anticipate loss of electrical power and other utilities and consider emergency generators, alternative fuels, and similar contingency arrangements.
- Identify alternative means of transportation and alternative routes for all critical personnel, services, suppliers, contractors, etc., and establish relationships with lease and rental companies.
- Develop a phone directory for critical suppliers, contractors, services, etc.

## Section B – Building and Structures

- Survey potential external entry points of water intrusion due to inclement weather including windows, doors, vents, wall air conditioners, wall penetrations, etc. (semi-annually)
- Review the structural integrity of each building and structure including any physical damage.
- Ensure that roof loading designs contemplate appropriate winter ice and snow loading for the location.
- Inspect roofs, roof coverings and walls for damage and overall integrity.
- Inspect sign, conveyor, and stack supports, guy wires, cables, anchorages, etc., to ensure they can withstand cold weather and winter storms, including high winds.
- Inspect insulation on piping and structures to ensure protection against cold temperatures. Install additional insulation, storm doors, windows, shutters, dampers as required.
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## Section C – Fire Protection Systems

- Develop a written Liquid Damage Prevention Plan (LDPP) for the structure which identifies high risk areas of potential damage as identified in the facility surveys.
- Prepare a cold weather plan which includes promptly clearing snow from roads, drives, access ways, fire pump houses, fire hydrants, sprinkler control valves/valve pits, hose houses, explosion relief vents and smoke/heat vents.
- Shut off, drain and properly tag any wet standpipes with piping located in inadequately heated areas.
- Drain and inspect dry pipe, pre-action and deluge piping, including pilot lines, for proper pitch.
- Service low points drains and remove any excessive priming water.
- Insulate valve enclosures and heat to at least 40°F.
- Test non-freeze (anti-freeze) sprinkler systems for proper solution concentration for temperatures anticipated.
- Ensure that sprinklers in the immediate vicinity of steam pipes, unit heaters, and other heating devices have the correct temperature rating.
- Ensure that portable and wheeled fire extinguishers exposed to freezing temperatures are designed for such service; if not, relocate them to heated enclosures.
- Fully service automotive fire apparatus
- Convert wet pipe sprinkler systems in inadequately heated buildings, or portions of buildings, to dry pipe or pre-action systems or provide adequate heat. Special attention should be given to sprinklers near windows, doors, passageways between buildings, in attics, in crawl spaces, and similar areas.

## Section D – Water Supplies

- Inspect fire hydrants, fire department connections, wall hydrants, fire pump test headers, water motor gongs, etc., for proper drainage.
- Protect sections of exposed piping and fire, domestic or mill water supplies from freezing.
- Install colored marker poles at hydrants, pits and valve locations.
- Ensure that sprinkler valve and meter pits are dry and frost-proof.
- Repair any leaking fire protection devices.
- Ensure that all fire hoses are properly drained, dried and stored.
- Ensure that gravity water tanks and fire pump suction tanks are full and properly heated to a minimum of 40°F and inspect them for leakage and structural integrity. The temperature must be checked on a regular basis. Vents should be inspected for ice blockage.
- Service all water tank and fire pump house
- heating systems and maintain these systems in good working order.
- Full-service diesel fire pump drivers and equip them with block heaters. Inspect and/or test the following:
  - Batteries and battery chargers
  - Fuel supplies
  - Anti-freeze coolant solutions

## Section E – Heating Systems

- Service heating systems and correct any deficiencies:
- Clean and inspect burners, boilers, flues and chimneys and remove any obstructions.
- Test controls for proper operation.
- Service and inspect and/or test temporary heaters; gas or oil salamanders or torpedoes; electric radiant, heat or halogen lights; etc., for proper, safe operation.
- Arrange to either store a reserve supply of fuel on premises or have the supplier guarantee a reserve supply with delivery. Alternate, safe energy sources should be investigated where possible.
- Maintain adequate clearances between combustible building materials, stock, etc., and heating system components.
- Maintain a minimum temperature of 400 F at all times in structures protected by wet pipe sprinkler systems, all dry pipe valve enclosures, pump houses, deluge valve enclosures and pre-action valve enclosures.

## Section F – Emergency Equipment

- Provide for emergency, temporary heating, steam, electrical, etc., supplies as needed. Equipment should be in good condition, serviced, and approved for the application. Consider self-contained equipment which is not dependent on electricity or other fixed piping utilities.
- Inspect and service all cold weather equipment such as electrical wrap tape, spot heaters, water pumps, snow blowers, shovels, snow plows, sanders, and related equipment.

- Have plywood and tarps available to make temporary repairs to roofs, walls, etc., or to construct temporary enclosures or wind breaks.
- Make arrangements for several forms of emergency communications including cellular phones, two-way radios, ham radio operators, etc.

## Action to take once a cold weather emergency is imminent

### Section A – Plant Management/Emergency Organization

- Assemble the Plant Emergency Organization Team, supplies and equipment at a designated safe location on site. The Cold Weather Emergency Team should remain on site until the emergency has passed. Supplies and equipment should include:
  - Emergency lighting
  - Snow removal equipment
  - Sand, chemicals and tools to cover or remove ice
  - Portable pumps and hoses for water removal from roofs, buildings or other areas
  - Emergency generators
  - Lumber and nails
  - Tape for windows, doors and other openings
  - Tarps and rope
  - Portable heaters
  - Manual and power tools
  - Shovels, axes, etc.
  - Sandbags
  - Saws and chain saws
  - Emergency telephone list(s)
- Ensure that the Plant Emergency Organization have the following:
  - Nonperishable food
  - First-aid equipment
  - Lighting
  - Two-way communication equipment
  - Stored drinking water
  - Blankets
  - Appropriate clothing including cold weather gear and boots.
- Establish emergency communication methods.
- If necessary, shut down operations and processes safely in accordance with OEM recommendations. Drain tanks and piping to prevent freezing.
- Turn off non-essential lighting, machinery and equipment. Anticipate power outages and surges; be prepared to shut down systems such as computers.
- Recommend early closing or delayed opening.

## NatCat Tips: Cold Weather

- Back up important computer data and records; and store backups in a safe location protected from cold weather, snow and wind.
- Protect important paper records from cold weather, snow and wind.
- When possible, move important equipment and stock if subject to potential collapse or other weather exposure. If equipment or stock cannot be relocated, consider additional protection with tarps, portable heaters, etc.
- Consider flooding potentials:
  - De-energize equipment which may be submerged.
  - Move equipment and stock to higher locations or protect with sandbags.
  - Verify operation of pumps and other dewatering equipment.

### Section B – Building and Structures

- Anchor and tie down all small structures, equipment, and storage in the yard; trailers; conveyors; mobile equipment; lumber; process equipment; etc., to prevent movement by winter storms. Move smaller objects inside if possible.
- Ensure all traveling cranes and bridges are secured in accordance with the manufacturers' instructions, including setting all rail clamps and securing with wedges and cable anchors.
- Brace unsupported structural members and foundations for structures/buildings under construction. Follow temporary heating safe operating procedures.

### Section C – Fire Protection Systems

- Inspect all fire protection equipment and leave in service. Adequate heat must be provided.
- Ensure all fuel tanks are full.
- Verify all fire water tanks or reservoirs are full and protected from freezing.

### Section D – Heating Systems

- Ensure that an adequate supply of fuel is available for all heating systems.
- Delay all planned boiler or heating system inspections until the emergency has passed.
- Provide required heat for personnel, cold-susceptible equipment, processes, and stock. Restore heat to areas subject to freezing which may have been cut back previously. It may be necessary to provide additional heat to normally cold areas.
- Add heat tracing to fire protection and process piping subject to freezing.
- Ensure all sprinkler system dry pipe valve enclosures are adequately heated.
- Check all areas of the facility on a regular basis for adequate heat to prevent freezing of pipes and equipment. Pay attention to attics, concealed spaces, stairwells, remote areas, loading docks, internal combustion engines, air compressors, and similar areas and equipment.

### Section E – Emergency Equipment

- Ensure emergency generators are operational and fuel tanks are full.
- Clean all catch basins, drains, and drainage ditches.

## NatCat Tips: Cold Weather

- Lower the levels of retention ponds.
- Ensure all sump pumps are operational and connected to emergency power.
- Begin snow removal operations as necessary and call for arranged outside snow removal contractors as needed. It is usually possible, and advisable, to maintain snow removal operations through the winter storm to allow emergency access if required. Emphasis should be placed on the following objectives:
  - Clear snow from access ways, fire hydrants, pumps houses, valves and utilities.
- Remove snow from roofs, especially at differing roof elevations subject to drifting.
- Clear roof drains and remove ice build-ups.
- Remove ice build-ups from cooling equipment.

# Recovery action after a cold weather emergency

## Section A – Plant Management/Emergency Organization

- The Plant Emergency Organization Cold Weather Emergency Response Team should be prepared and trained in recovery efforts specific for each location.
- Secure the site and establish a Command Center to direct the recovery operation.
- Survey damage and, as soon as possible, provide notification of both fire protection impairments to AIG. Apprise the local fire and/or police departments, as appropriate, of impairments and damage as well.
- Survey for safety hazards such as downed electrical wires, leaking gas or flammable liquids, poisonous gases, damage to foundations or underground piping, etc. Use care around downed power lines and leaking fuel lines and consider providing barriers or watches. Notify the appropriate utilities as soon as possible.
- Snow removal and related storm clean-up should be expedited, with priority given to access roads and fire protection equipment.
- Clear all roads, driveways, parking areas, walkways and emergency access ways of snow.
- Clear and make accessible hydrants, fire pump houses, valves and other fire protection related equipment.
- Sand, salt and/or appropriate chemicals should be spread on icy areas of roadways, walks, and other slippery surfaces.
- Clean roof drains, storm drains, retention ponds, etc., and remove any debris. Designated key personnel and emergency contractors should be called to coordinate and start repairs and salvage. Ensure that all contractors are familiar with Company Policy Programs and share responsibility for fire safe conditions at all times.
- When temperatures begin to rise, monitor areas of the facility subject to freezing for leaks from broken pipes, fittings and other components.
- Begin salvage as soon as possible to prevent further damage. This includes the following activities:
  - Relocate property to protected areas to prevent further damage.
  - Separate damaged goods from undamaged goods.
  - Make temporary repairs as necessary to prevent further damage.
- Inspect all electrical equipment including exposed insulators, bus bars, conductors before re-energizing electrical distribution systems and equipment.

## Section B – Fire Protection

- Repair and return to service as soon as possible all fire protection including sprinklers, water supplies, fire pumps, special extinguishing systems, alarms and supervisory service, etc.
- Ensure that all Company Policy Programs, such as Hot Work (cutting and welding) Smoking, etc., are properly supervised and enforced during salvage and repair operations. If automatic protection is impaired, arrangements for special fire watches should be made and notice should be provided to the fire department and the insurance company.

## Additional Information



AIG clients can contact their Risk Engineer or Risk Consultant for additional support.

For more information on how to prepare, protect and recover, visit our Catastrophe Preparedness Center at [www.aig.com/cat-preparedness](http://www.aig.com/cat-preparedness)

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