FLOOD RECOVERY

Floods are a devastating natural disaster than can occur quickly or provide some warning to prepare. Flood waters can remain relatively localized or can spread for miles. Regardless of the nature of the flood, beginning the process of clean-up and resumption of normal business activities can be an overwhelming undertaking. Setting priorities for critical business functions and evaluating property damage are the first steps in resuming operations.

Keeping employees and recovery workers safe should be paramount. Keep these important points in mind:

- Stay abreast of local alerts and utilize warning systems to get timely and expert information and advice.
- Before approaching your building, look outside for downed power lines, broken gas lines, foundation damage, or cracks in walls.
- Use extreme caution when entering flooded buildings. There may be hidden damage to foundations, as well as the support structure. DO NOT allow anyone to enter a flooded building until local authorities indicate that it is safe to do so.
- Utilize the following personal protective equipment:
    - Sturdy rubber boots to prevent foot lacerations, a leading cause of injury following a disaster.
    - Water proof gloves to help avoid contact with floodwater. Generally speaking, keep skin covered and away from potentially contaminated floodwaters.
    - Respiratory protection to avoid breathing potential fungal spores from wet building materials.
- Some electrical systems and equipment can store energy resulting in electrical shocks even when the equipment is unplugged. Exercise extreme caution when working on or near electrical equipment.
- Provide appropriate arc flash protection for personnel working on equipment or energizing electrical equipment.
- Use only fuel-powered (not electrical) pumps, dryers, and heaters for clean-up and ensure that they are used in open air with adequate exhaust ventilation.
- Understand that floodwater can often be contaminated with raw sewage, oil or gasoline, industrial or agricultural chemicals, hazardous substances or bacteria that can present health risks.

Floodwaters and their accompanying contaminants can cause damage to buildings, equipment, and electrical, pneumatic, and mechanical systems. Resuming business operations requires cleaning, preparation, and start-up of these systems and equipment. The following bullet points should be considered to help prevent equipment damage and minimize property exposures to employee injury.

Building – Verify stability via visual inspection before entering any flooded building. If extensive damage is noted or any condition that is out of the ordinary is discovered, consult with a professional engineer or architect to have the building certified as being safe for work.

Gas, Water, and Electrical Lines – Ensure that local utility company representatives or other 3rd party professionals inspect for damage.

Generator – Prevent inadvertent energizing of power lines and protect utility line workers by ensuring that the main circuit breaker is off (open) and locked out prior to starting the generator.

HVAC Equipment – Flood exposure voids nearly all HVAC equipment warranties and manufacturers of such equipment, including hot water heaters, urge that *water damaged equipment be replaced regardless of apparent condition.* Operation of water exposed equipment could result in shock, fire or explosion.

Controls, Gas Valves, and Electrical Wiring on boilers, pressure vessels, and production equipment should be replaced. These devices are highly susceptible to permanent damage from water, creating an unreliable device at best and a fire/explosion hazard at worst. These devices can be damaged via water and debris entering them through splashing, wicking, and high moisture content in the air, regardless of whether they were submerged or not.

Boilers – Inspect and service boilers, focusing on the following areas:

- Clean and remove sediment and corrosion from flues, orifices, tubes, and pipes.
- Replace insulating jacket, combustion chamber insulation, and refractories.
- Replace vents that show any sign of corrosion, as improperly vents can create a dangerous condition by allowing flue gasses to enter occupied building spaces.
- Replace oil burners to prevent leaks, valve failures, and electrical faults.

Transformers (dry and Oil filled), Electrical Motors, Electrical Switchgear - De-energize, inspect, clean, dry, and test before energizing or starting. An electrical contractor or other 3rd party specialist maybe needed for large motors and other electrical devices.

Mechanical Equipment – Inspect and check gear drivers and rotating parts. Some of these may need to be disassembled to be fully cleaned and dried.

Hydraulic Equipment – Test the oil in sumps for presence of water. If found, the oil should be removed, sump cleaned, and refilled with new oil.

Inspect all equipment for moisture, mud, silt, and debris.

Porous materials that have become wet or otherwise noticeably contaminated should be removed from the facility and discarded.

Once operations have resumed, take the time to review the overall flood episode. Consider flood preparation (do you have an adequate Flood Emergency Response Plan), disaster preparation plan (could flood damages have been mitigated to a greater extent), business continuity plan, and recovery plan. Make updates to plans based on what was learned from the “real-life” experience.