2021 Winter Storm CAT Events

A Report for Professional Cleaning and Restoration Contractors,

First Edition,

February 25th, 2021

Copyright Statement

Foreword

The goal of the organizations involved in preparing this report is to offer credible information, while striking an appropriate balance between the risks and responses to those risks, and to ensure an appropriate level of care is provided to clients.

The authors have focused on the most credible information sources; prioritizing those from respected government entities and industry groups. In addition, repeated emphasis has been given to the need for cleaning and restoration professionals to conduct a hazard assessment as part of their provision of services. As detailed in the body of this document, this assessment is a critical element of this report and should be used to evaluate the health and safety issues facing the individuals conducting certain types of water damage mitigation work, as well as the building occupants, and the public.

The hazard assessment (see section 2.2, Health and Safety takes into consideration mandates and recommendations from federal, state, and local authorities; and is used to determine what level of services to offer, what type of personal protective equipment is necessary and a host of other critical decisions. While such assessments can be standardized, they should always be site specific.

Contents

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It is also important to note that this document is specific to the implementation of processes associated with mitigating water related property damage following regional freezing weather. The assessment of hazards referred to herein is specific to those hazards associated with such work. Be aware that other concerns may exist and still be present, including those represented by the acronym “PALMS” (Pandemic/PCBs, Asbestos, Lead/Legionella, Mold/Metals, Silica/Safety/Sustainability). Because other hazards may exist within the work site, a proper and complete hazard assessment is still a vital part of your overall health and safety processes. However, the assessment of hazards other than those discussed in this report is beyond the scope of this document.

Preface

The restoration industry has extensive experience in assisting individuals and organizations when their lives or businesses have been disrupted by catastrophic events such as floods and fires. Clients continue to turn to restoration professionals to assist them in properly responding to property damages caused by the recent North American winter storms. From February 11-19, 2021, a series of four powerful winter storms shattered temperature and snowfall records across North America. Storms Shirley, Tabitha, Uri and Viola left more than 80% of the United States covered in snow and freezing temperatures.

Widespread power outages, frozen water supply systems and crippled transportation infrastructure were left in the wake of these storms. As the restoration community begins to respond, it is imperative that contractors be clear about what their services can, and cannot, accomplish for the client.

For some, the decision to respond to the recent catastrophic loss (CAT) event has already been made. Especially for contractors located within the directly impacted areas across North America, the response is an unavoidable reality. For others located outside the immediately impacted area, determining if and how to respond is a decision that must be considered carefully.

Many in the water damage restoration industry have considered joining the effort in the aftermath of previous CAT events. The sheer volume of potential work is an enticing proposition. Roughly half of contractors that participated in CAT events, however, say they wish they never had.

There is a tremendous number of complications associated with CAT response, many of which simply do not exist in typical projects. These can include establishing and managing a base of operations, financial burdens from over extension and the logistics of remote mobilization. Identifying and maintaining adequate infrastructure and resources in the wake of a catastrophe is an art in and of itself.

Likely one of the greatest complexities, however, is the management of human resources to perform the work. Restoration contractors need to consider if their staff is ready to leave their homes and families behind for weeks or months on end. Additionally, contractors need to consider how they will manage morale, housing, food and the other basic needs to keep their team safe, healthy and engaged.

It is also important that restoration contractors continually evaluate and document their own internal processes and procedures to ensure they are not putting their workers or business at risk as the demands generated by responding to a CAT event change.

This document has been prepared by a wide range of experts from the cleaning, restoration and industrial hygiene professions as preliminary assistance for contractors to begin formulating a plan to manage the risks arising from efforts to provide mitigation services

related to the 2021 winter storm CAT events. It is important to note this report, and the processes described in it, are not intended for the general public. Although there is a wealth of excellent information in this document that can be useful to building owners, property managers, the healthcare industry, and other stakeholders, the primary focus is directed to the professional cleaning, restoration and remediation industries.

This report is based on extensive industry experience and, to the extent possible, incorporates portions of the guidance provided by various authorities and regulatory bodies, referenced in *Appendix 1, Helpful Links and Resources*. However, **this report is not intended to be, nor should it be construed as, an industry standard.** Each project is unique and requires a specific work plan, and it is not the goal of this document to offer solutions for every scenario.

Restoration contractors should exercise sound professional judgement to determine the best work plan for each project on a case-by-case basis by taking into account the site conditions and all other relevant factors. Relevant factors may include, without limitation, the use and nature of the building, the vulnerability and health conditions of the occupants, the needs and budget of the customer, test data and other input from competent professional consultants, the availability of resources, and other factors.

Accordingly, this report is intended solely for general informational purposes. It is a potential supplement to the contractor's other training, experience, and evolving research. Anyone using this document should understand its limitations. It may be a helpful reference point to begin the development of a work plan but is not intended to be construed as advice of any sort, including without limitation, technical, medical, or legal advice.

Common sense should prevail in all cases, and the contractor has a duty to exercise reasonable care. To determine what constitutes reasonable care, the contractor should seriously consider seeking direction from governing agencies and advice from industry peers and competent professionals in the fields of industrial hygiene, construction, and law. The nature of any CAT event does not lend itself to a one-size-fits-all approach, so deviations from the information discussed in this report may be appropriate and preferable, based on the requirements of the project and the professional judgment of the contractor.

1. Basic Information About the 2021 North American Winter Storms

From January 24th through February 19th, 2021, nine separate named storms of more than 400,000 square kilometers each impacted North America[1]. From February 11th through the 19th specifically, a series of four of these storms shattered temperature and snowfall records across both Canada and the United States. Storms Shirley, Tabitha, Uri then Viola left more than 80% of the United States covered in snow and freezing temperatures.

Widespread power outages, frozen water supply systems and crippled transportation infrastructures were left in the wake of these storms. More than 3.8 million properties lost power across the United States as of Tuesday, February 16th, many in areas with temperatures below zero degrees Fahrenheit. As of February 20th, hundreds of thousands remained without power.

Power outages were not the only infrastructure crisis caused by the weather events. Natural gas lines serving both residential and industrial services froze, along with water supply lines. Power generation plants lost considerable efficiencies in parts of the country where extreme cold weather is highly uncommon. The result left properties in broad regions of below freezing temperatures without power or heat for several consecutive days.

To further illustrate the historical significance of the event, more than 2,000 temperature and snowfall records dating as far back as the 1800s were not only broken but shattered inside the eight days between February 11th and the 19th[2].

2. Catastrophic Loss (CAT) Response Principles

In the wake of a CAT event, the art of procuring, managing and mobilizing limited resources to meet an overwhelming demand is a critical task for any contractor attempting to mount a response. In an effort to increase capacity, contractors are often faced with decisions to reduce the resources that would typically be applied under normal business operations in an effort to increase capacity. Under such circumstances, several critical principles need to be considered regardless of the strain on resources. These include, but are not limited to:

- Resource procurement, mobilization and management
- Health and safety of workers and occupants
- Federal and local regulatory requirements, to include environmental hazards
- Project prioritization
- Project documentation and record keeping, to include project verification (in-house) and validation (third party)

As contractors consider the type and volume of work to be performed, an assessment shall be performed to determine the hazards present, assess the risk to workers and occupants, and to

[1] https://weather.com/storms/winter/news/2021-02-19-record-cold-snow-winter-storms-stretch-recap
[2] https://www.cnn.com/2021/02/16/weather/winter-storms-weather-tuesday/index.html

choose what administrative and engineering controls and personal protective equipment are required to perform work safely at the site. After the site is stabilized an ongoing assessment should be performed that covers the principles that are important to ensure critical elements associated with health, safety, regulatory requirements and job performance are addressed.

The contractor may decide upon assessing a project to provide one or more services, depending upon resource requirements and availability. These services may include:

1. Stabilization of the structure to prevent further damage
2. Demolition and removal of non-salvageable goods and materials
3. Structural drying to remove excess moisture
4. Restoration and reconstruction

For further discussion on providing only stabilization services to a client, refer to Section 3, *Stabilization as a Service.*

2.1 Resource Procurement, Mobilization and Management

In any CAT event, the ability to procure, mobilize and manage resources can not only be challenging, in some cases specific resources may be entirely unavailable. In the case of the 2021 winter storm CAT events, this issue is greatly amplified.

Damages are not only spread broadly across the country; they have occurred in areas that are not normally affected by significant cold winter weather. Infrastructure such as power, water and natural gas has not been furnished with the appropriate measures to protect against frigid cold. The result is a higher degree of damage to each affected property, and the likelihood the affected property will be without one or more critical utilities for several days after the damage occurs.

Successful projects will require a combination of thorough resource assessment and prioritization of projects based upon the availability and reliability of those resources. Resources to be considered may include:

- Personnel qualified in each of the following areas:
    - Client engagement, sales and coordination
    - Initial inspection and assessment
    - Equipment mobilization and installation
    - Remote project and team management
    - Equipment monitoring and teardown
- Transportation and fuel reserve
    - Transportation of staff
    - Hauling and transport of equipment and supplies
    - Fuel for multiple days of operation
- Communication systems (e.g., cellular versus satellite)

- Power generation and distribution
- Heating systems
- Controlled demolition and removal tools and supplies
- Containment systems and supplies
- Air filtration systems and filter reserves
- Drying systems

Appropriately qualified personnel, along with the necessary living requirements to meet the needs of those personnel are the highest priority resource. This may be true even in cases where the severe winter weather is in the contractor's normal area of business. Employees may likely also be victims of the event, and may be displaced, impeded or otherwise burdened through damage to personal or family properties.

When considering engaging in projects, an assessment that compares the resource needs listed above against the availability and capacity of those resources is important to ensure the contractor can allocate the resources necessary to meet contractual obligations for the project. Refer to section 3.2, *Contractual Considerations* for a discussion specific to contracts.

2.2 Health and Safety

When performing restoration activities, an assessment should be performed to identify hazards specific to the work site. The assessment should include the identification of conditions that have the potential to cause injury or illness to workers and occupants. The hazard assessment should be updated regularly, especially when a new process or equipment is introduced to the worksite. Several documents related to regulatory requirements associated with this assessment exist and can be found through the agencies listed under *Appendix 1, Helpful Links and Resources*.

The assessment should address the requirements of federal and local regulations related to the project, which should include concerns related to environmental hazards associated with regulated, hazardous materials.

2.3 Federal and Local Regulatory Considerations to Include Environmental Hazards

Restoration contractors performing work need to have a working knowledge of the relevant regulation requirements for the specific region of operation. Links and resources to federal agencies are provided in *Appendix 1, Helpful Links and Resources.* Additionally, however, contractors need to consider the local regulatory bodies with jurisdiction over the area in which the project exists. In order to perform some activities necessary to mitigate and restore properties affected by the 2021 winter storms, the federal and local regulatory bodies may require:

- Specific training
- Applicable licensing or certification
- Applicable permits

- Testing of potentially hazardous materials
- Material handling procedures
- Specific disposal methods and locations
- Written hazard communication program
- Written Respirator program
- Site specific safety plans such as
    - Exposure Control plan
    - Emergency Response Plan
    - Fire Protection plan

In all cases, contractors must understand the federal and local requirements related to hazardous materials. Responding to a disaster does not suspend regulatory requirements unless a specific order is issued by state and federal authorities. Rigorous enforcement of health and safety precautions is especially important in a disaster area where medical services may be limited. A qualified individual must determine if there are assemblies present suspected to contain one or more regulated hazardous materials. It is highly likely that resources to test for the presence of hazardous materials will be severely limited for several weeks in many areas impacted by the 2021 winter storms. When faced with this limitation, if a material is suspect, contractors should assume the hazardous material is present. Such materials should be handled and disposed of as though the hazardous material is present, or services should be limited to those that can be completed without disturbing the suspect materials or in any way violating federal or local laws and regulations regarding the hazardous material.

In cases where the presence of hazardous materials cannot be verified due to limited testing and verification resources, the contractor should limit the scope of work to stabilize the property, prevent further damage, and prevent occupant exposure to suspected hazardous materials until appropriate assessments can be completed. For more information on providing stabilization as a service, refer to section 3 of this report.

In every case, it is good practice to minimize airborne dust.

2.3.1 Asbestos-Containing Materials (ACM)

Applicable federal and local laws and regulations regarding the handling and disposal of ACM shall be followed. In the event suspect materials that may contain asbestos must be removed, handled, disposed or otherwise manipulated or disturbed, qualified personnel must perform appropriate testing to assess the presence of asbestos. When qualified personnel are not available to assess presence of asbestos in suspect materials, those materials must be treated as though asbestos is present. The materials shall be handled, transported and disposed in accordance with appropriate federal and local regulations, to include appropriate training and licensing. When qualified personnel to perform handling, transport and disposal are not available, the materials shall not be handled, disturbed or otherwise manipulated or disturbed until such time the appropriate resources become available.

In circumstances where qualified personnel are unavailable to assess, handle, transport or dispose of ACM, the contractor may decide to limit the scope of work to stabilizing the property until such time that appropriate assessments can be completed. For more information on providing stabilization as a service, refer to section 3 of this report.

Specific guidance related to asbestos can be found in the United States EPA Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP)[3]. Below is an excerpt from NESHAP:

> ***Asbestos Control Method***
> *The Asbestos NESHAP requires specific work practices to control the release of asbestos fibers. To help ensure that the work practice standards of the Asbestos NESHAP are followed during a demolition or renovation operation, the asbestos NESHAP requires at least one onsite representative trained in the regulatory provisions and the means of compliance. This trained individual needs to receive [periodic] refresher training… , including: applicability of the rule; notifications; material identification; control procedures for removal; adequate wetting; local exhaust ventilation; negative pressure enclosures; glove-bag procedures; High Efficiency Particulate Air (HEPA) filters; waste disposal work practices; reporting and recordkeeping; and, asbestos hazards and worker protection.*
>
> *EPA has not approved any alternatives to the demolition requirements of the Asbestos NESHAP. EPA has issued guidance on how to request approval for an alternative control method to the Asbestos NESHAP.*
>
> ***Waste Disposal and Transportation***
> *The rule generally requires that asbestos-containing waste material be sealed in a leak-tight container while wet, labeled, and disposed of properly in a landfill qualified to receive asbestos waste. Landfills have special requirements for handling and securing the asbestos-containing waste to prevent releases of asbestos into the air. Transportation vehicles that move the waste from the point of generation to the asbestos landfill have special labeling requirements and waste shipment recordkeeping requirements.*

2.3.2 Lead-Based Paint (LBP)

When performing services in structures built in or before 1978, lead-based paint (LBP) may be present[4]. When services include disturbing or removal of painted surfaces, contractors must abide by federal and local laws and regulations related to LBP. In the event testing resources are unavailable to determine if LBP is present, and the structure

[3] https://www.epa.gov/asbestos/overview-asbestos-national-emission-standards-hazardous-air-pollutants-neshap#asb
[4] https://www.cdc.gov/nceh/lead/prevention/children.htm

was built in or before 1978, the contractor should assume that painted surfaces include LBP, and follow the appropriate regulatory requirements accordingly.

In circumstances where qualified personnel are unavailable to assess or handle LBP, the contractor may decide to limit the scope of work to stabilizing the property until such time the appropriate assessments can be completed. For more information on providing stabilization as a service, refer to section 3 of this report.

2.3.4 Silica Dust

During the process of removing affected materials, in cases where gypsum wall board (e.g., Drywall, Sheetrock) must be removed, contractors shall follow the appropriate federal and local regulations for preventing silica dust exposure to workers and occupants. Steps to reduce exposure may include wetting of materials prior to cutting, ventilation or air scrubbing of the workspace using methods that do not cause a contamination or spread of dust to unaffected areas, the use of air filtration in the workspace and appropriate personal protective equipment.

In the event that resources are unavailable to prevent silica dust exposure to workers and occupants, the contractor may decide to limit the scope of work to stabilizing the property until such time that appropriate resources become available. For more information on providing stabilization as a service, refer to section 3 of this report.

2.3.5 Mold

In specific jurisdictions, local regulations may exist that govern the assessment, removal, handling and disposal of materials contaminated with mold. The contractor should be aware of the regulations that exist in the jurisdiction in which a project is located. At the time of this report being published, mold remediation was determined to be beyond the scope of the document in an effort to expedite the process of providing information on the other topics this report addresses. Future editions of this report are planned to include the topic of mold, as the report expands to address the full restoration of structures affected by a CAT event.

When mold growth is present, contractors are urged to review regulatory requirements and appropriate industry standards related to mold remediation. These include the ANSI/IICRC S520, AIHA Guideline 3-2004 and the US EPA document 402-K-01-001[5].

2.4 Project Prioritization

For many responding to the 2021 winter storm events, the project demand will likely exceed the resources available. Therefore, it will be important for contractors to fully assess available resources before engaging with each client. After completing an assessment of available resources, contractors can make an informed decision regarding the type and quantity of

[5] https://www.epa.gov/sites/production/files/2014-08/documents/moldremediation.pdf

projects to engage in. This may include making the determination to provide a limited scope of services such as stabilization, or to only engage in the structural drying stage once demolition or other services have been completed by a third party.

In any case, it is recommended contractors use appropriate contracts that address the specific services to be rendered, and the specific jurisdiction in which the project occurs. Refer to section 3.2 *Contract Considerations* for more information regarding contracts.

2.5 Project Documentation and Record Keeping

Regardless of the service type being rendered, a reasonably thorough record of the state of the building at the time a contractor begins a service should be made, in addition to reasonably detailed records of the services rendered. Documentation requirements related to the services that may be rendered by the contractor may be found in relevant industry standards, to include the ANSI/IICRC S500 and the ANSI/IICRC S520. This documentation will vary depending upon the service, and may include but is not necessarily limited to:

1. Stabilization of the environment to prevent further damage
    a. Inspection of the extent of water penetration and migration
    b. Record of initial moisture levels
    c. Environmental conditions at service start (temperature, humidity, Category, Class, Condition)
    d. Record of moisture levels during stabilization
    e. Environmental conditions through the stabilization period
    f. Record of moisture levels and the end of the stabilization period
2. Demolition and removal of non-salvageable goods and materials
    a. Inspection of the extent of water penetration and migration
    b. Inspection of the affected material condition
    c. Assessment for hazardous materials
    d. Record of proper handling of hazardous materials
    e. Record of the demolition services rendered
    f. Record of verification/validation of hazardous materials
    g. Record of hazardous material transport and disposal
    h. Record of remediation/abatement activity
3. Structural drying to remove excess moisture
    a. Inspection of the extent and duration of water penetration and migration
    b. Inspection of current state of demolition
    c. Inspection of the current condition of building systems and materials (Category, Class, Condition)
    d. Record of initial moisture level in affected materials
    e. Record of resources used to facilitate structural drying
    f. Record of moisture level in building materials after completion of drying
4. Restoration and reconstruction
    a. Assessment of material and assembly kind and quality
    b. Inspection of current building system and material conditions

c. Inspection of assembly and material current moisture levels
d. Scope of reconstruction services

3. Stabilization as a Service

During and after events such as the current series of winter storms, demand will significantly outweigh the capacity of service providers in all aspects of recovery. To maximize the capacity of the restoration industries specific service specialty, an emphasis can be placed on stabilizing affected properties. The process of stabilization is intended to minimize the amount of damage that may occur in an affected structure while capacities for full structural drying and restoration fall short of the demand. In this effort, contractors place priority on eliminating the sources of damage through means that minimalize the need for scarce or heavily demanded resources.

When providing stabilization as a service, contractors should be aware of the primary principles and objectives of their service, and ensure clients are clearly informed of the service intent. These services should also be disclosed and agreed upon in a properly written and executed contract. Refer to section 3.2 *Contract Considerations* for more information on contracts.

Contractors are urged to understand and follow applicable standards related to the services necessary in a water damaged structure, to include the current edition ANSI/IICRC S500.

3.1 Principles of Stabilization

In the wake of a catastrophic loss event (CAT), severe limitations prevent many impacted properties from receiving services often needed during typical restoration activities. These limitations are the result of limited resources. Although not a complete list, some of the more common resources that will be limited as a result of the 2021 winter storm events include:

- water supply systems
- cellular and land line communications
- power distribution systems
- transportation systems such as roads or bridges
- tools, equipment and other supplies
- qualified personnel
- hazardous material testing services
- waste transportation and disposal services

Due to these limitations, restoration contractors may consider prioritizing services offered within the impacted region to those that will provide the most value to the community served while reducing the resources necessary for each project. One strategy to accomplish this goal is to focus specifically on *stabilization* as a service.

Stabilization services include steps that can decrease further damage to an affected structure without significant power or equipment demands. It may also include utilizing methods where laborer training and qualifications are less specialized.

Generally, these steps focus on the following workflow:

1. Assess occupant and worker health and safety concerns
2. Identify the source(s) of water penetration and migration
3. Remove bulk water and select saturated building materials
4. Provide for humidity removal or control

In the sections that follow, this report discusses some of the items a contractor should consider when deciding to provide a scope of work limited to stabilization.

3.1.1 Assess occupant and worker health and safety concerns

Regardless of the scope of work, contractors shall perform an assessment of the jobsite specific health and safety hazards in accordance with applicable federal or local laws and regulations. The results of the assessment are then used to decide what administrative controls, engineering controls and PPE are required by law.

The assessment must be completed by an appropriately qualified individual to determine, at a minimum, the likelihood or presence of:

- Health and safety concerns
- Regulated hazardous materials

In the event the assessment identifies one or more suspected regulated hazardous materials, the services rendered must be conducted in a manner that does not violate federal or local laws and regulations associated with the hazardous materials. Refer to section 2.3, *Federal and Local Regulatory Considerations to Include Environmental Hazards* for more information on this assessment and how it may impact the services rendered.

3.1.2 Identify the source(s) of water penetration and migration

In order to reduce the potential for damage from excess moisture, areas where elevated moisture is present need to be identified. This process begins by identifying the sources of water penetration. In the wake of the 2021 winter storms, the primary source of water penetration on a project may be from frozen and burst water supply lines. When ruptured lines are the source, the structure's water supply should be closed until full restoration services can be performed on the plumbing systems.

Identification of water penetration and migration often includes following the plumbing supply lines through the structure using a combination of moisture meters and invasive

testing. Often the plumbing system failures following a deep freeze are limited to structural assemblies in contact with outdoor air (e.g., exterior walls, substructures, attics). However, it is important to note that many areas affected by the 2021 winter storms were without power or natural gas for multiple days and allowed to reach freezing interior temperatures for extended periods of time. Plumbing systems in the building's interior assemblies therefore may also be impacted. Thermal imaging cameras may be useful in addition to moisture meters for investigation of potential water sources.

The individual performing the water source and migration investigation must have a working knowledge of where plumbing systems are located within assemblies, moisture meters, and assessing potential that a building material or system may contain hazardous materials. If there is a concern for the presence of hazardous materials, the identification of water sources should rely on non-destructive testing only until such time the presence of hazardous materials can be properly assessed. See section 2.3, *Federal and Local Regulatory Considerations to Include Environmental Hazards.*

The result of the inspection to identify sources of water penetration and migration should be documented.

3.1.3 Remove bulk water

Stabilization includes removing as much excess moisture from the affected structure as practical using the resources available during the response. The exact methods and results will vary depending upon the resources available, and the results of the assessment for regulated, hazardous materials.

Methods that may be used to remove bulk water include:

- Pumping standing water using submersible pump systems
- Extracting water using vacuum systems
- Absorbing water from surfaces using mops, rags or other materials
- Removal of select wet porous materials

Workers using gas powered pump outs, truck-mounted extraction units and generators shall ensure that their exhaust does not enter the work site as this can cause fatalities from carbon monoxide poisoning.

3.1.4 Perform bulk removal of select building materials

Following a CAT event, when sufficient humidity control and drying systems are unavailable, stabilization can be significantly improved by removing saturated building materials and contents. Specific emphasis can be placed on saturated, highly porous materials such as carpeting, carpet pad, wet insulation, wet gypsum wall board (e.g., Drywall, Sheetrock) and other affected materials that contain large amounts of water.

The removal of building materials should only be conducted after the assessment for regulated, hazardous materials has been completed (see section 2.3 *Federal and Local Regulatory Considerations to Include Environmental Hazards).* The scope of material removal and removal methods shall comply with the outcome of that assessment.

3.1.5 Provide for humidity removal or control

To minimize the impact of humidity from residual moisture following bulk water removal and the removal of select building materials, the contractor may use one or more methods to remove moisture laden air from the structure. The most appropriate method for humidity control will depend upon the resources available.

To determine the most appropriate method, the contractor may consider prevailing outdoor weather for the local area. In conditions where the outdoor temperature and humidity are anticipated to be appropriate, humidity control may be achieved through natural or mechanical ventilation. This may be temporarily necessary even when outdoor conditions are not necessarily ideal or power and equipment resources are unavailable, leaving ventilation as the only option.

When power and equipment are available to provide mechanical humidity control, water removal capacity should be gauged to the structure based on the anticipated evaporation from remaining structural materials. In cases where wet porous materials must remain, more mechanical water removal will be necessary. Where wet porous materials have been entirely removed, less water removal capacity will be needed. Contactors may use the current ANSI/IICRC S500 recommended dehumidification capacity calculations as a guide to determine the appropriate capacity.

3.2 Contractual Considerations

One who commences restoration services without a contract signed by the customer may face an array of potentially serious legal and financial consequences, depending on the law of the jurisdiction. Among other things, these consequences can include a waiver of the right to payment for services rendered, the loss of the right to record a mechanic's lien, civil liability, and disciplinary action against the contractor's license.

A contractor may be able to significantly reduce risk with a professionally-drafted contract that carefully discloses the limitations of the work and the resources available to perform the work. However, great care should be used to avoid making incriminating admissions in the process. Releases of liability should be used sparingly and only when reasonable under the circumstances. Each jurisdiction has rules governing the drafting and enforceability of releases and waivers. Many jurisdictions require releases to conspicuously and clearly identify the types of claims that are being released. If the interpretation of a release requires knowledge of the law or legal expertise, it may be unenforceable, particularly against consumers.

The risk to the contractor is higher when contracts are not specific to the service type. Contracts should be reviewed by an appropriately qualified attorney with knowledge of the contractor's business and law of the jurisdiction in which the work will be performed. Contract laws and regulations vary widely from one jurisdiction to another, and great potential risk can occur from the use of a contract that is not custom-tailored to the law that applies to the project.

4. Acknowledgements

The RIA, IICRC and AIHA would like to thank the individuals and organizations who contributed time and expertise to the development of this report. Contributors, reviewers and authors are listed in this section alphabetically.

4.1 RIA/IICRC/AIHA Crisis Response Joint Task Force

This document is managed by the RIA, IICRC and AIHA *Crisis Response Joint Task Force* (JTF). The JTF is comprised of a group of volunteers, appointed by the IICRC, RIA and AIHA. Appointees to the JTF are selected based upon the specific crisis to which the report is addressed.

4.2 Joint Task Force Procedures

The JTF is a collaboration of the Institute of Inspection, Cleaning and Restoration Certification (IICRC), the Restoration Industry Association (RIA) and the American Industrial Hygiene Association (AIHA). The JTF was formed to manage the production, review and publishing of this report.

The JTF is charged with reviewing available information, to the extent possible, from various institutions to include recognized authorities from government, education, healthcare and research. Further, the JTF has been asked to update and revise reports as frequently as practical in an effort to incorporate rapidly changing and developing information. A full description of the JTF policies and procedures is available from the IICRC , AIHA, and the RIA.

4.3 Reviewers and Contributors

The following individuals and organizations have contributed content or peer review or other support to this report. The IICRC, RIA and AIHA thank these individuals for their time, expertise, peer review or other support. Reviewers and contributors were provided with a draft of this report for review and to provide comment. Due to the rapid nature of publishing a report intended to serve contractors during a major catastrophic event, reviewers were not provided an opportunity to review the final edited document, and thus may not necessarily agree with the final text in full.

Crisis Response Joint Task Force Members, alphabetically:

- Brandon Burton, WLS, MWR, IICRC Standards Chair, Next Gear Solutions, BIEC Consulting
- Mark Drozdov, IICRC Board of Dir., Vice Chair S410, AIHA Gov't Relations Chair
- Norris Gearhart, CR, FLS, CLS, RTPE of Gearhart and Associates
- Michael Pinto, FLS, CSP, CMP, SMS, RTPE of Wonder Makers Environmental

Peer Review group, alphabetically:

- Leslie Anderson, Vice President of Training & Launch, Paul Davis Restoration
- J. Scott Armour, M.S., Armour Applied Science
- Kristy Cohen, CEO of Restoration Industry Association
- Edward H. Cross, Esq., Law Offices of Edward H. Cross; RIA Contractor Advocate
- Graham Dick, Genesis Restorations Ltd.; Chair, S410 Infection Cont. Consensus Body
- Peter P. Duncanson, SR. Director of Training and Development, ServiceMaster Restore
- David Dybdahl, CPCU, MBA, CIC, ARM, American Risk Management Resources Network
- David Krause, PhD, MSPH, CIH, Healthcare Consulting and Contracting (HC3), AIHA IEQ Comm.
- Mickey Lee, WLS, CSDS, Mickey Lee Consulting, LLC
- Ed Light, CIH, President of Building Dynamics, LLC
- George (Jerry) McCaslin, SeaCast, Inc., AIHA IEQ Comm. Chair
- Mark Meece, Complete DKI
- Tom Peter, CIH, Insurance Restoration Specialists
- Kent Rawhouser, CMP, WLS
- Lee Senter, CEO of Dry-It Corp
- Katie Smith, CR, PHC Restoration
- Mark Springer, CR, RIA President, President of Dayspring Restoration
- Bruce White, Aerobiology, a Pace Analytical Laboratory

This Joint Task Force is a collaboration of the Institute of Inspection, Cleaning and Restoration Certification (IICRC) the Restoration Industry Association (RIA), and the American Industrial Hygiene Association (AIHA).

The IICRC is the leading certification body in the cleaning and restoration industry, and an ANSI Accredited Standards Developer. For more information on the IICRC, visit www.IICRC.org. The RIA is the only international, professional trade association for the cleaning and restoration industry. Its national and international member firms specialize in cleaning, treating and repairing damaged buildings and their contents. RIA sponsors education, training, and certification programs, and is the leading voice advocating for the rights of contractors. For more information, visit www.restorationindustry.org. The AIHA is the leading association for scientists and professionals committed to preserving and ensuring occupational and environmental health and safety (OEHS) in the workplace and community. Founded in 1939, we support our members with our expertise, networks, comprehensive education programs, and other products and services that help them maintain the highest professional and competency standards. For more information, visit www.aiha.org.

Appendix 1: Helpful Links and Resources

North American Regulatory Bodies:

United States

Occupational Health and Safety Administration (OSHA)
https://www.osha.gov
US Environmental Protection Agency
https://www.epa.gov

Canada

Government of Canada, *Public Health Agency*
https://www.canada.ca/en/public-health/

Documents

United States EPA, 2009
Guidance for Catastrophic Emergency Situations Involving Asbestos,
https://www.epa.gov/large-scale-residential-demolition/guidance-catastrophic-emergency-situations-involving-asbestos

Restoration Industry Association, 2013
Asbestos Fact Sheet, Short Version
https://members.restorationindustry.org/store/viewproduct.aspx?ID=4471539
Asbestos Fact Sheet
https://members.restorationindustry.org/store/viewproduct.aspx?ID=4471287

Examples of Common Asbestos-Containing Materials (ACM)

The following list is an excerpt from the RIA 2013 document titled *Asbestos Fact Sheet.* A copy of this document can be accessed using the link under 'Documents' above.

- Pipe insulation
- Boiler insulation
- Gaskets on boiler or ventilation systems
- Floor tiles
- Linoleum flooring
- Mastics and glues
- Asbestos roofing materials
- Roofing tars and asphalt roofing materials
- Cement roofing and siding (cement panels or corrugated panels)
- Caulking
- Wall or ceiling plaster
- Gypsum board and spackle
- Textured ceilings (popcorn ceilings)
- Fire doors
- Blown-in insulation – vermiculite insulation
- Sprayed-on fire-proofing coatings
- Fire blankets and clothes
- Cement pipes or boards (transite)
- Woven cloth wire insulation
- Ceiling tiles
- Laboratory countertops and sinks

Appendix 2: Liability and Risk Management

The following information is provided as a tool to evaluate and address business risk and liability and may be useful in considering the structure and coverage of insurance products secured by the contractor. This appendix is not intended to provide an exhaustive list of the considerations a contractor may need to address; it can be a useful part of the risk and liability management process.

Risk Management Considerations

1. Do not work outside of your skill set. A CAT response far from home is no place for on-the-job training.
2. Avoid hiring temporary labor if possible. Trained, trusted and, proven employees are the key to getting jobs done right.
3. Work under contracts with specific scopes of work; and utilize signed change orders that authorize the payments for changes in scope. Stop work if you do not have the signed change order.
4. Warn the stakeholders if a delay in your work increases the risks associated with it. Example, being ordered to remove 5 air movers or leave a job before you know it meets clearance standards.
5. Clearly identify who you are working for and their ability to pay you. Insurance recoveries for clearly covered water losses from frozen pipes can be significantly reduced if mold starts growing or bacteria from Category 3 water is part of the loss.
6. If you hire subcontractors, obtain an insurance certificate directly from the insurance agent, not from the sub-contractor. Utilize a tight set of insurance specifications in your sub-contacts.
7. Make sure that your insurance is fit for the purpose for which it is intended, many of the liability insurance policies sold to restoration contractors are not adequate to address the loss exposures commonly associated with restoration contracting.
8. Inform your insurance providers that you are performing CAT response work, especially if that work is outside of your normal operating territory. Adjustments to your insurance coverage are likely necessary.
9. Seek advice from a qualified insurance professional on the different risk profiles of different states. The risks associated with operating in a different state can be very different than your home operating territory.
10. Before you start work make sure you have all the needed licenses to do that work and that the work you are performing is not illegal in some way. Pay particular attention to the application of biocides. At least 16 states require the applicators of biocides to be licensed as Pesticide Applicators.
11. Follow the manufacturers label on cleaning products and biocides. It can be a violation of Federal Law to deviate from the label instructions on biocides and disinfectants. Insurance companies do not pay for illegal work.
12. Protect workers for COVID-19 with COVID safe working conditions.

Workers Compensation Insurance

This insurance coverage is state specific. Employees injured out of state can claim benefits in the state where the injury occurred that may be different than the home state. The workers compensation coverage will need to be adjusted to cover this contingency when working out of state. There is no exclusion for COVID-19 claims in this policy.

General Liability Insurance

This coverage applies anywhere in the US and Canada. However, be aware of state specific exclusions that do appear in some policies. Do not work in a state that is excluded on your General Liability insurance policy.

The more common problem on the General Liability insurance policies commonly sold to restoration firms are a series of exclusions related to various contaminates and bio-hazards. Insurance companies responded to COVID-19 with universal exclusions for Communicable Disease as a cause of loss. COVID-19 is a communicable disease. The General Liability insurance policy will also usually exclude losses arising from specific contaminants including silica, lead, asbestos, mold, bacteria, or virus. In addition to excluding losses from these contaminants General Liability insurance policies when purchased separately and not part of a combined policy form with CPL insurance will exclude all coverage from a job site where you are working to clean up mold or Cat 3 water. The liability insurance coverage gaps created by a job site exclusion on a General Liability cannot be completely filled through the purchase of Contractors Pollution Liability insurance.

Virtually all General Liability insurance policies in 2021 will have a COVID-19, virus, or a Communicable Disease exclusion in them. If the restoration firm itself is insurable with the training, prior experience in biohazard remediation and has PPE equipment, the resulting insurance coverage gaps can be filled with a specially modified Contractors Pollution Liability insurance policy that provide an affirmative coverage grant for these contaminates.

Contractors Pollution Liability Insurance

This insurance applies anywhere in the United States and Canada. CPL insurance was originally designed to fill the insurance coverage gaps created by the pollution exclusion in the General Liability insurance policies purchased by contractors working to remediate Superfund hazardous waste sites, outdoors. Due to the original design of the insurance policy, most CPL policies are not fit for indoor work involving biohazards. Some but not all CPL policies are specifically designed for the restoration trade.

Professional Liability Insurance

General Liability and Contractors Pollution Liability insurance policies routinely exclude losses from “Professional Services”. The IICRC Standards are “Professional” standards. Professional Liability insurance is available for no additional premium on the higher quality CPL+Professional liability and combined GL+CPL+Professional Liability policies designed specifically for restorers.