HEALTHIER WORKPLACES | A HEALTHIER WORLD

Disaster Preparedness, Response, and Recovery Policy Document

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Introduction: The Urgency of Strengthening Disaster Readiness

Disasters strike with little warning, and their impact on workplaces and communities can be catastrophic. In the past five years alone, the U.S. has experienced an unprecedented wave of emergencies – from pandemics to wildfires to extreme weather – that underscore the need for improved preparedness. The statistics are sobering. Between 1980 and 2024, the U.S. experienced 403 weather and climate disasters where costs reached or exceeded $1 billion – totaling over $2.9 trillion (NCEI, 2025). Hurricane Ian in 2022 became one of the costliest U.S. disasters ever, causing roughly $113 billion in damage and over 150 deaths. The Western and Central Drought/Heat Wave occurring in the same year cost over $22 billion and resulted in over 135 deaths (Smith, 2023). In February 2021, an extreme cold wave and power grid failure in Texas resulted in a humanitarian crisis, claiming an estimated 226 lives and $24 billion in damages (Smith, 2022). And the global COVID-19 pandemic, beginning in 2020, caused worldwide disruption, killing millions, including tens of thousands of U.S. healthcare and essential workers, and bringing many businesses to a standstill.

Beyond the human tragedy, these events carry massive economic and social costs. They destroy infrastructure and assets, disrupt supply chains, and often leave workers without livelihoods. The Small Business Administration warns that 25% of businesses do not reopen after a major disaster (U.S. Small Business Administration, 2025), illustrating how a single catastrophe can permanently shutter workplaces and eliminate jobs. For those that do reopen, recovery can be long and costly. The frequency of billion-dollar disasters has skyrocketed, driven in part by climate change, which is intensifying hurricanes, wildfires, floods, and heat waves, and by global interconnectedness, which allows pandemics to spread and supply chain failures to cascade. The total cost of U.S. weather and climate disasters over the last 5 years (2020–2024) exceeded $740 billion (NCEI, 2025), and the toll on human health is incalculable.

Amid these challenges, one fact stands out: effective preparedness, response, and recovery can save lives and livelihoods. Studies show that investing in disaster mitigation and emergency planning yields a significant return by reducing injury, death, and damage when events occur. Conversely, inadequate planning can turn a crisis into a catastrophe. Workplaces are a critical arena for disaster preparedness – not only because employers have a duty to safeguard their workers, but also because workplaces often serve the community (e.g. hospitals during pandemics, utility companies during storms, warehouses during supply emergencies). If workplaces are unprepared, the impacts of a disaster on society are magnified.

However, many organizations remain dangerously under-prepared for disasters. Surveys indicate major gaps in workplace emergency planning: in one poll of employed adults, less than one-third felt their workplace was proactive about emergency preparedness, and more than 75% reported that no disaster drill (for events like severe weather) had ever been conducted at their job. Only 43% said their employer has an emergency response plan, and a mere 19% said employees were included in any response team or training (Smartsign, n.d.). These findings highlight a "it won't happen here" mentality that pervades many organizations – an assumption that routine fire drills or an OSHA-mandated evacuation map is sufficient. Real-world events have proven otherwise.

The Challenge of Disaster Readiness

From an industrial hygiene and occupational safety perspective, disaster readiness presents a complex challenge: it requires extending the principles of workplace health protection into volatile, unpredictable scenarios that often extend beyond the workplace's four walls. Traditional occupational safety programs tend to focus on preventing everyday accidents and exposures under normal operating conditions. But disasters are non-routine, high-impact events – they can introduce new hazards rapidly, overwhelm existing controls, and demand swift action under stress.

If disaster preparedness is widely recognized as essential, why does effective readiness remain elusive for so many organizations? One significant barrier is inadequate planning: organizations often have disaster plans narrowly tailored to basic evacuation or continuity measures, neglecting broader scenarios such as natural disasters, pandemics, or extensive worker health and safety concerns. Frequently, plans omit essential elements like provisions for employees with disabilities, comprehensive hazard mitigation, or worker engagement through training and drills. The result is confusion and improvisation during crises, escalating injury and illness risks, particularly for those unaccustomed to emergency conditions. This inadequate preparedness often leaves organizations vulnerable, exacerbating the human and economic toll of disasters.

The complexity of health hazards introduced by disasters further complicates preparedness efforts. Events like hurricanes and wildfires present diverse industrial hygiene issues - from biological and chemical contaminants to prolonged smoke exposure and psychological stress - often overlooked by conventional emergency plans. Many organizations fail to integrate the specialized knowledge of industrial hygiene professionals, leaving critical exposure risks unmanaged. Bridging the gap between emergency management and worker health and safety requires proactive collaboration to ensure hazards are anticipated, measured, and controlled effectively before disasters strike. Industrial hygiene expertise

must be embedded in emergency planning to adequately identify, evaluate, and mitigate potential health risks during disaster response and recovery.

Resource and training limitations compound readiness issues, as theoretical plans frequently lack practical backing. The COVID-19 pandemic exposed widespread shortages in essential protective equipment and revealed that many workers were inadequately trained to handle such gear correctly. Small businesses and vulnerable workplaces tend to lack dedicated safety expertise and adequate disaster protocols; this increasingly extends to mid-market and larger businesses as resources continue to tighten. These gaps highlight the urgent need for regular training, sufficient resources, and inclusive policies to ensure robust preparedness across all workplaces, safeguarding those most at risk and building resilience against evolving and unpredictable hazards. Organizations must invest in ongoing education, realistic drills, and adequate procurement of critical supplies to ensure their disaster readiness is practical and effective rather than merely theoretical.

Moreover, the nature of modern risks is constantly evolving, intensifying the challenges organizations face in achieving effective disaster readiness. Climate change, emerging infectious diseases, aging infrastructure, and unprecedented technological hazards all require dynamic and adaptive planning. The recent increase in large-scale wildfire smoke affecting urban populations and the global reach of pandemics like COVID-19 exemplify new hazards with limited historical precedent, underscoring the necessity of continuous risk assessment and flexible response planning. Effective disaster preparedness today demands forward-thinking strategies, regular reassessment of potential threats, and adaptability to rapidly changing scenarios, positioning industrial hygiene and occupational safety professionals as crucial leaders in building comprehensive, proactive preparedness frameworks.

In addition to hazard-focused planning, preparedness must also account for worker well-being. Programs such as CDC's Emergency Responder Health Monitoring and Surveillance (ERHMS) framework highlight the importance of integrating both physical and mental health readiness, ensuring responders are protected before, during, and after disaster operations (NIOSH, 2024).

Recent Policy and Regulatory Developments

In response to an escalating series of disasters and increasing public concern, federal and state policymakers have intensified efforts to strengthen disaster preparedness through regulatory and legislative actions. However, the scope and effectiveness of these developments vary significantly by hazard type and jurisdiction. At the federal level, the COVID-19 pandemic catalyzed substantial policy advancements, notably the establishment of the Office of Pandemic Preparedness and Response Policy (OPPR) in 2023, designed to maintain consistent national readiness and response coordination. Additionally, OSHA's rulemaking process for a permanent infectious disease standard represented a critical step toward institutionalizing workplace protections learned during the pandemic, though this effort has been withdrawn (OIRA, 2025). Additionally, Congress continues to deliberate updates to the Pandemic and All-Hazards Preparedness Act (PAHPA), further emphasizing the importance of sustained public health readiness.

Regulatory action addressing wildfire smoke has predominantly occurred at the state level, led by pioneering initiatives from California's Cal/OSHA. Since 2019, California has mandated employers to actively monitor air quality and implement protective measures, including mandatory respiratory protection when air pollution reaches hazardous levels. Similar rules in Oregon and Washington reflect a growing recognition of wildfire smoke as a recurring occupational hazard, although federal OSHA currently provides only guidance rather than enforceable standards. These state-led developments serve as crucial precedents, potentially guiding future federal regulations and underscoring the necessity for employers, particularly in high-risk regions, to proactively integrate air quality preparedness into their disaster response plans. While most progress has been at the State level, recent Federal updates, such as the September 2025 guidance supporting voluntary N95 use for wildland firefighters (NIFC, 2025) suggest increasing national attention to this issue.

Extreme heat, increasingly acknowledged as a significant occupational hazard, has driven additional regulatory initiatives. OSHA's proposed Heat Illness Prevention Standard aims to mandate comprehensive heat exposure mitigation measures, marking an important shift from reactive responses toward proactive environmental planning. Some states, including California, Washington, and Nevada, have already implemented enforceable standards addressing heat exposure. Furthermore, OSHA has launched a National Emphasis Program targeting heat-related hazards, enhancing enforcement and compliance monitoring in high-risk industries. In wildfire response and other disaster operations, managing heat stress remains a top priority, as high physical exertion can preclude the safe use of respirators and amplify cumulative health risks. This growing regulatory framework signals a broader trend toward explicit recognition and management of climate-related workplace hazards, requiring employers to anticipate and mitigate risks previously viewed as unavoidable.

Recent regulatory developments have also addressed critical gaps in emergency responder safety. OSHA's 2024 proposed Emergency Response Standard, although currently in limbo, represents a substantial modernization of existing regulations, significantly expanding protections and aligning federal safety practices with contemporary emergency management frameworks. The proposed standard covers a wide range of emergency personnel, including firefighters, EMTs, technical rescue teams, and law enforcement, introducing mandatory pre-incident planning, medical evaluations, hazard assessments, and structured post-incident analyses. This comprehensive approach is intended to reduce occupational risks for emergency responders, ensure robust incident management, and enhance overall disaster response efficacy.

Additionally, chemical hazard preparedness has seen significant regulatory progress. The EPA's revised Risk Management Program (RMP) regulation mandates chemical facilities' risk assessments include natural hazards (e.g., hurricanes, floods, wildfires), reflecting heightened awareness of the intersection between natural disasters and industrial safety. Facilities must now explicitly consider extreme weather events and climate-related disruptions as part of their chemical safety planning, reinforcing preparedness and preventive measures against catastrophic chemical releases. These regulatory changes indicate meaningful progress toward a cohesive, multi-hazard preparedness strategy, though challenges remain in implementation, enforcement consistency, and resource availability, particularly for smaller businesses and vulnerable industries. Overall, these

developments highlight an ongoing evolution toward integrated disaster readiness frameworks at all levels of governance.

High-Risk Industries and Settings

Disasters pose significant risks across all workplaces, but certain industries and occupational environments carry distinctly elevated hazards. Identifying these settings allows targeted preparedness and focused intervention strategies. The following highlights critical industries and settings facing pronounced disaster-related risks:

Healthcare and Social Assistance (Hospitals, Clinics, Long-term Care Facilities): Continuous operational demands during disasters create significant risks for patient safety and healthcare workers.

- Must operate continuously during emergencies, managing patient surges and maintaining essential utilities like power and HVAC.
- Healthcare workers face heightened infection and exposure risks, particularly evident during pandemics such as COVID-19, where PPE shortages exacerbated vulnerabilities.
- Regulatory bodies like the Centers for Medicare & Medicaid Services (CMS) mandate robust emergency preparedness programs, yet practical implementation through training and drills remains a significant challenge.

Emergency Services (Firefighters, Law Enforcement, EMTs, Rescue Teams): Frontline responders routinely face intense, immediate physical and psychological dangers during disaster events.

- Personnel encounter immediate physical dangers, prolonged exposure to hazardous substances, and significant psychological stress during disaster response operations.
- Post-event chronic health impacts, such as respiratory illnesses following 9/11, highlight ongoing occupational risks.
- Upcoming OSHA standards aim to formalize safety practices, emphasizing the necessity of robust training, medical surveillance, and a culture prioritizing responder safety.

Utilities and Critical Infrastructure (Power, Water, Telecommunications, Transportation): Disruptions in these essential services significantly compound the impacts of disasters, presenting complex operational challenges.

- Essential services are crucial for community resilience, yet highly susceptible to operational disruptions from severe weather, wildfires, or infrastructure failures.
- Restoration crews face electrocution risks, hazardous environments, and challenging work conditions requiring specialized safety protocols and coordinated response.
- Comprehensive disaster preparedness, including mutual aid agreements, adequate PPE, and systematic training, is vital for rapid and safe recovery operations.

Manufacturing and Industrial Facilities (Chemical Plants, Refineries, Factories): Industrial sites pose heightened dual risks due to their potential for both operational disruptions and hazardous releases during disasters.

- Facilities face dual threats: direct damage and secondary catastrophic events like chemical releases during natural disasters.

- Regulatory mandates now require extensive hazard analyses, incorporating climate resilience and disaster scenarios into operational safety planning.
- Industrial hygienists play critical roles assessing post-disaster safety, managing environmental risks, and guiding facilities toward safe operational resumption.

Construction and Temporary Worksites: Inherently hazardous environments, such as construction sites, are significantly exacerbated during severe weather or structural failures, such as crane collapses or excavation floods.

- Workers involved in disaster recovery operations face hazards including structural instability, toxic exposures, and debris-related injuries.
- Adherence to OSHA's HAZWOPER standards, clear emergency response protocols, and multilingual safety communication tailored to transient workforce dynamics are crucial for reducing disaster-related risks.

Effective Disaster Planning and Response Programs

A comprehensive approach to disaster preparedness is essential to protect workers, maintain operational continuity, and minimize disruption. Similar to noise hazard management, successful disaster preparedness requires cross-sector strategies, adapting universal principles to specific industry contexts. Effective programs prioritize prevention, clearly defined procedures, continuous education, and robust communication. Key elements of a robust disaster planning and response framework include:

- **Risk Assessment and Scenario Planning:** Effective disaster preparedness programs start with detailed hazard vulnerability assessments, systematically identifying and evaluating risks based on geographic location, operational specifics, and emerging threats. Comprehensive assessments involve scenario-based analyses - considering factors such as potential flooding, earthquakes, pandemics, wildfires, protests, operational disruptions, and cyber threats - to anticipate impacts on workers, facilities, and business continuity. For each scenario, mitigation measures are defined, including engineering improvements, operational adjustments, and emergency resource allocation. Organizations must regularly update these assessments, incorporating new data, emerging trends, and lessons from recent disasters to ensure plans remain accurate and effective.
- **Written Emergency Action Plan and Incident Management System**: Every organization requires clearly documented emergency response plans outlining specific procedures for evacuation, shelter-in-place, and crisis management tailored to their unique risks. Implementing structured frameworks like the Incident Command System (ICS) ensures clearly defined roles, accountability, and coordinated communication during emergencies. Plans should include specific emergency communication strategies, designated assembly points, methods for accounting for all personnel, and detailed provisions for vulnerable populations, such as persons with disabilities or health conditions. Regularly reviewing and updating these plans, alongside training all staff to understand and execute them effectively, is critical.
- **Prevention and Mitigation Controls:** Effective disaster preparedness prioritizes proactive measures to minimize risks before emergencies occur. Engineering controls include installing backup power systems, fire suppression equipment, flood barriers, and seismic reinforcements to protect critical infrastructure. Administrative controls involve proper chemical storage procedures, scheduling hazardous operations outside disaster-prone seasons, maintaining essential emergency supplies such as food,

water, and personal protective equipment (PPE), and regular safety audits to identify vulnerabilities. Organizations should implement redundancy strategies, such as off-site data backup and telecommuting capabilities, to enhance resilience during disruptions.

- **Multi-Employer Exposure and Workforce Resilience:** A critical yet often overlooked aspect of disaster preparedness is the cumulative exposure of workers who respond across multiple sites and employers. Disaster response personnel frequently operate outside their primary workplace, facing overlapping physical and psychosocial stressors such as heat, noise, and fatigue. While programs like NIOSH's Total Worker Health® framework encourage a more integrated approach to well-being, most systems still fail to account for multi-employer or off-the-job exposures that can amplify overall risk. Incorporating exposure tracking and fatigue management across employment boundaries would strengthen workforce resilience and long-term health protection.
- **Training, Exercises, and Education:** Training and practical exercises are foundational to ensuring effective disaster response. Employees must be trained on emergency plan procedures, specific roles and responsibilities during crises, the correct use of safety equipment, and protocols for different disaster scenarios. Regular exercises - including evacuation and shelter-in-place drills, tabletop exercises, and full-scale simulations involving external emergency services - help identify gaps and ensure readiness. Continuous education reinforces preparedness culture, reduces panic, and empowers employees with confidence and clear expectations during real events. Multilingual training materials and accessible educational resources ensure comprehensive engagement across diverse workforces.
- **Communication and Coordination:** Robust disaster response relies heavily on effective internal and external communication strategies. Organizations should establish redundant communication methods, including mass notification systems, two-way radios, emergency hotlines, and backup communication technologies like satellite phones. Coordination with local emergency responders and community stakeholders through established relationships and pre-disaster planning enhances situational awareness and response effectiveness. Transparent and timely communication minimizes misinformation, reduces confusion, and supports quick, informed decision-making during emergencies.
- **Response Operations and Safety Management:** Clearly structured operational procedures are essential to maintaining safety and order during disaster responses. Establishing dedicated Emergency Operations Centers (EOCs) or command posts centralizes management efforts, coordinating resources and decision-making. Assigning clear emergency response roles, especially designating safety officers to continuously assess hazards, ensures worker safety remains paramount. Real-time hazard monitoring, provision and enforcement of appropriate PPE, and detailed record-keeping of response actions and safety incidents help maintain operational effectiveness, protect personnel, and facilitate accountability during recovery efforts.
- **Recovery and Continuity Planning:** Effective disaster preparedness extends beyond immediate response to detailed recovery and continuity planning. These plans prioritize rapid operational resumption, outline critical business functions and their restoration timelines, and provide guidelines for workforce support and communication post-disaster. Ensuring facilities' safety through rigorous environmental assessments - checking for structural integrity, contamination, and air quality - is crucial before

reoccupying workplaces. Employee assistance programs, clearly communicated HR policies for downtime and payroll continuity, and systematic post-incident reviews capturing lessons learned all support long-term organizational resilience and continuous improvement.

Role of Industrial Hygienists and OEHS Professionals

Occupational and environmental health and safety (OEHS) professionals, particularly industrial hygienists (IHs) are pivotal in safeguarding workers and workplaces throughout all phases of disaster management—preparedness, response, and recovery. With specialized expertise in anticipating, recognizing, evaluating, and controlling hazards, IH and OEHS professionals bridge the gap between scientific knowledge and practical workplace applications. Their technical proficiency, combined with proactive leadership and effective communication skills, ensures comprehensive protection and continuous improvement of disaster preparedness programs. The following outlines their key responsibilities in disaster preparedness and response:

- **Risk Assessment and Hazard Evaluation:** IH and OEHS professionals systematically assess workplace hazards associated with various disaster scenarios - such as floods, earthquakes, pandemics, or chemical releases using advanced tools and methodologies. This involves conducting detailed hazard vulnerability assessments, facility walkthroughs, and historical incident analyses to anticipate potential risks and their impacts. During actual disasters, they rapidly evaluate emerging hazards using direct-reading instruments and environmental sampling techniques. Data collected informs immediate decision-making, prioritizes risks effectively, and guides the selection of appropriate protective measures, thus enabling swift, evidence-based interventions during crises. They play a critical role in tracking long-term exposures and understanding the chronic effects of hazardous exposures.
- **Implementation of Controls and Protective Strategies:** Leveraging their expertise, IH and EHS professionals apply the hierarchy of controls to mitigate identified hazards. They design and implement engineering solutions - such as improved ventilation systems, structural reinforcements, and containment barriers - to manage physical and environmental risks. Administrative controls, including strategic planning of work rotations and scheduling modifications to minimize exposure, are also crucial. Additionally, they ensure appropriate personal protective equipment (PPE) is selected, readily available, and properly used. Effective implementation of controls, such as establishing clear criteria for action (e.g., air quality thresholds during wildfires), significantly reduces disaster-related risks.
- **Protection of Responders and Emergency Workers:** Protecting those responding to disasters is an essential responsibility of IH and EHS professionals. They provide specialized guidance on protective equipment, stress management, exposure monitoring, and safety protocols for emergency teams and recovery personnel. Acting as safety officers, they continuously assess conditions and enforce rigorous safety standards during disaster responses. This includes managing rehabilitation areas for responders, implementing exposure tracking systems, and facilitating health surveillance programs post-event to mitigate long-term health consequences.
- **Risk Communication and Real-Time Training:** Effective communication of hazards and immediate training are critical during emergency situations. IH and OEHS professionals translate complex hazard information into clear, actionable instructions

for both workers and the community. During crises, they deliver rapid, on-site training in proper PPE use, emergency procedures, and hazard awareness. Their ability to communicate empathetically and authoritatively builds trust, enhances compliance, and fosters a culture of safety even amid uncertainty and rapid change. Additionally, they coordinate multilingual and culturally sensitive messaging to ensure widespread understanding and adherence. IH professionals are capable of communicating potential chronic effects of exposures in a tactful and informative manner. They are also often formally trained in risk communication and may lead town halls or other public addresses.

- **Post-Disaster Assessment and Recovery Management:** Following disasters, IH and OEHS professionals lead comprehensive environmental and occupational health assessments to ensure safe re-occupancy of workplaces. They conduct thorough evaluations for contaminants such as mold, chemical residues, and air quality issues, often working collaboratively with structural engineers and environmental specialists. They are often trained in water sanitation surveys to ensure potable water has not been compromised. Their detailed assessments help organizations make informed decisions about when and how to safely resume operations, implement necessary remediation efforts, and manage hazardous waste disposal according to regulatory standards.
- **Emotional and Psychological Health Advocacy:** Recognizing the psychosocial impacts of disasters, IH and EHS professionals advocate for holistic approaches to workplace health that address both physical and psychological safety. They support initiatives like critical incident stress management, psychological first aid, and mental health resources for workers affected by traumatic events. Through collaboration with employee assistance programs (EAPs) and mental health professionals, they ensure that emotional and psychological well-being remains a priority within organizational safety culture. In addition, IH and safety professionals themselves are often exposed to extreme situations and potential trauma during these events, which should be evaluated and addressed in a similar manner to any other worker.
- **Leveraging External Resources and Expertise:** IH and EHS professionals actively collaborate with external entities - including governmental agencies, professional associations, and specialized consultants - to access advanced resources and expertise during disaster preparedness and response. They serve as organizational liaisons, connecting workplaces with essential services from OSHA, CDC, FEMA, EPA, and local public health authorities. By maintaining robust professional networks and engaging with external guidance, they ensure disaster management strategies remain current, comprehensive, and aligned with best practices.

Policy Recommendations

The following recommendations outline practical, evidence-based policies and actions to significantly enhance workplace disaster preparedness, response, and recovery capabilities, focusing specifically on safeguarding worker health and safety. Targeted toward a broad coalition of stakeholders, including government agencies, employers, professional associations, labor groups, and community organizations, these proposals integrate lessons learned from recent disaster events and align with recognized best practices. Each recommendation represents a crucial step toward building safer, more resilient workplaces and communities:

- **Establish Comprehensive Emergency Preparedness Standards:** Regulatory agencies such as OSHA should develop and enforce updated standards requiring robust workplace emergency preparedness plans. These standards should mandate regular, scenario-based risk assessments, detailed evacuation and shelter-in-place protocols, comprehensive employee accounting methods, and clear communication strategies. Special attention must be given to high-risk workers and vulnerable populations, ensuring their protection through specific regulatory provisions. Regular enforcement through inspections and clear penalties for non-compliance would institutionalize preparedness, creating safer workplaces. These standards should include ways to track multiple employer risks and exposures as well as off the job stressors.
- **Strengthen OSHA and FEMA Partnerships**: OSHA and FEMA should deepen collaboration to protect responders and workers during national emergencies. This involves fully implementing and funding the Worker Safety and Health Annex of the National Response Framework, swiftly finalizing OSHA's proposed Emergency Response standard, and ensuring resources for responder safety training, equipment, and medical monitoring. FEMA preparedness grants should explicitly fund occupational health and safety resources, ensuring responders are adequately equipped and trained for safe operations.
- **Integrate IH and Safety Professionals into Emergency Management:** IH and OEHS professionals should be formally integrated into governmental and organizational emergency planning and management structures. Establishing dedicated occupational safety roles within emergency operations centers and crisis management teams ensures consistent expert input on worker protection. Training IH professionals in Incident Command System (ICS) operations will further facilitate effective integration, providing critical health and safety perspectives during emergency responses.
- **Expand Workplace-Oriented Disaster Communication Systems:** Effective emergency communications must explicitly include workplace health and safety alerts. Public agencies should develop standardized messaging tailored for workplaces during disasters, such as air quality alerts for wildfires, heat advisories, and infectious disease precautions, and distribute these through existing and expanded alert systems like Wireless Emergency Alerts (WEA) and community notification networks. Employers should also maintain internal notification systems capable of rapidly disseminating these alerts clearly and effectively to all employees.
- **Promote Proactive Mitigation in High-Risk Facilities:** Policies should mandate and incentivize proactive mitigation measures in high-risk facilities to prevent catastrophic events during disasters. Regulatory frameworks like EPA's Risk Management Program and OSHA's Process Safety Management standards should explicitly require natural hazard planning. Government incentives, such as resilience upgrade grants, tax credits for facility improvements, and insurance premium adjustments for preparedness, should encourage widespread adoption of protective measures like flood-proofing, backup power systems, and seismic retrofits.
- **Enhance Professional Training and Credentialing in Disaster Readiness:** Dedicated funding and support from government agencies and private sectors should expand specialized disaster preparedness and response training for IH/OEHS professionals. Establishing advanced certifications and continuing education courses covering incident command, chemical-biological-radiological-nuclear (CBRN) response, and disaster epidemiology will equip safety professionals to effectively manage health risks during crises. Cross-training between IH/OEHS and emergency management

professionals further enhances collaboration and effectiveness during disasters. Any effort to develop advanced credentials should build upon existing certifications such as the CIH, complementing rather than fragmenting professional recognition. Lessons learned from past specialty credential initiatives within the profession underscore the importance of aligning new programs with established standards and maintaining the integrity and value of core certifications.

- **Prioritize Equity in Disaster Preparedness and Response:** Disaster policies must explicitly address and reduce disproportionate impacts on vulnerable worker populations, including temporary, low-wage, and minority workers. Mandatory multilingual and culturally accessible disaster training materials, inclusive protection standards, and strengthened whistleblower protections are essential. Regulatory oversight should be intensified post-disaster to prevent exploitation of workers, and community organizations should actively participate in disaster planning and response efforts, ensuring equitable access to resources and protection measures.
- **Introduce Disaster Preparedness into Early Education:** Disaster readiness education should begin in schools, equipping children with foundational knowledge of personal safety and community resilience before they enter the workforce. Incorporating age-appropriate training on hazards such as severe weather, wildfires, and chemical releases can foster a culture of preparedness from a young age. Collaboration between public health agencies, education systems, and emergency management organizations can ensure consistent, evidence-based curricula that reinforce lifelong safety practices.
- **Ensure Transparent Post-Disaster Data Collection and Continuous Improvement:** Transparent, comprehensive data collection on disaster-related workplace incidents and the effectiveness of interventions should be mandatory. Agencies like OSHA and NIOSH should systematically track and publicly report worker injuries, fatalities, and illnesses associated with disasters. Regularly conducting after-action reviews (AARs) and disseminating lessons learned through accessible, centralized platforms will facilitate continuous improvement. Establishing multi-stakeholder conferences post-disaster can further institutionalize learning and drive policy refinements, enhancing future disaster resilience.

By implementing these policy recommendations, stakeholders can effectively protect worker health and safety, minimize disruption, and foster resilient workplaces prepared to withstand and quickly recover from disasters. Achieving this vision requires robust cooperation and sustained commitment from all sectors.

Conclusion and Call to Action

Disasters will always test us. They test the resilience of our infrastructure, the strength of our institutions, and the limits of our preparedness. In recent years, those tests have been exceptionally demanding – and have revealed both heartbreaking failures and inspiring successes. We've seen workplaces tragically unprepared – factories leveled by tornadoes without adequate shelter for employees, essential workers laboring through a pandemic without proper protection – and we've seen examples of foresight – companies that safely evacuated hundreds before a wildfire hit, or hospitals that continued care through hurricanes on backup systems and well-drilled staff. The difference is no accident; it comes down to planning, resources, and a culture that values safety and health.

Industrial hygienists and OEHS professionals know that none of this is beyond our control. While we cannot prevent all natural events or every unforeseen crisis, we can prevent the worst outcomes by acting now on the knowledge and tools at our disposal. As this paper has detailed, we have identified the hazards, we have developed best practices and standards, and we have seen policy momentum building. The urgency now is to implement – to turn recommendations into regulations and guidelines into standard operating procedures.

The stakes could not be higher. Lives, livelihoods, and the well-being of our communities depend on what we do in the quiet times *before* the storm, *between* the wildfires, and *ahead* of the next pandemic. Preparedness is not a cost without benefit; it is an investment with proven returns. FEMA estimates that each dollar spent on mitigation saves several dollars in post-disaster costs. But more poignantly, a strong preparedness program can mean a parent comes home from their disaster-response shift alive and healthy, or a small business reopens in weeks instead of never, or a community has clean air and water despite the chaos around it.

We call on all stakeholders - employers, workers, health professionals, educators, and policymakers - to commit to action. Embed comprehensive emergency preparedness within your organizational culture. Prioritize equitable access to training, resources, protective equipment, and resilient infrastructure. Critically, partner with AIHA and allied organizations to advocate for policies that safeguard workers and communities from disaster-related harm.

For more information on how to get involved, support implementation, or access technical guidance, please contact **AIHA Government Relations** at gr@aiha.org.

The evidence is robust. The strategies are clear. The time for collective action and sustained commitment is now.

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Executive Summary:
Disaster Preparedness, Response, and Recovery

Background

Disasters, whether natural such as hurricanes, wildfires, pandemics, and extreme weather, or human-made like chemical accidents and infrastructure failures, are occurring with increasing frequency and severity, posing significant risks to workers, businesses, and communities. Recent catastrophic events underscore this urgency: Hurricane Ian in 2022 resulted in over 150 fatalities and caused $113 billion in damage; the 2021 historic cold wave and winter storm led to 226 deaths and $24 billion in damages. The COVID-19 pandemic further highlighted extensive preparedness gaps, contributing to over a million American deaths. These events demonstrate a pressing need for strengthened disaster preparedness and response, particularly with an occupational health and safety focus.

Many workplaces remain dangerously underprepared. Surveys show that only 43% of U.S. employees report having an emergency response plan, and fewer than 1 in 5 have participated in emergency response training. Small businesses are especially vulnerable, with 25% failing to reopen after major disasters. Without immediate improvements, communities and workplaces will continue to experience preventable loss and disruption.

Recent Policy Landscape

Policymakers are increasingly recognizing the importance of disaster readiness, resulting in significant regulatory developments. OSHA has proposed a comprehensive Emergency Response standard to modernize worker protections during emergencies, while the EPA's revised Risk Management Program now requires facilities to consider climate resilience and natural disaster risks. States like California, Oregon, and Washington have implemented wildfire smoke and heat exposure standards, setting precedents for broader adoption. At the federal level, the establishment of the White House Office of Pandemic Preparedness and Response signals heightened governmental commitment to national readiness and response coordination.

High-Risk Industries and Environments

Certain sectors face especially pronounced disaster risks, requiring targeted preparedness efforts. Healthcare facilities must maintain operations during crises, exposing workers to significant health hazards, as seen during the COVID-19 pandemic. Emergency responders, including firefighters and EMTs, face immediate and prolonged dangers from physical injuries and psychological stress. Utilities and critical infrastructure workers encounter hazardous conditions during disaster recovery efforts. Manufacturing and industrial facilities are at high risk of catastrophic chemical releases or operational disruptions during disasters. Construction sites and temporary workplaces further amplify exposure risks, especially during severe weather events and structural failures.

Prevention Through Comprehensive Programs

Effective disaster readiness requires proactive, integrated strategies tailored to workplace and community contexts, including:

- **Risk Assessments and Scenario Planning:** Systematic hazard vulnerability evaluations addressing diverse disaster types.
- **Emergency Action and Response Plans:** Clearly documented procedures including evacuation, shelter-in-place, and incident management.
- **Engineering and Administrative Controls:** Infrastructure reinforcements, backup systems, emergency supply stockpiles, and safety audits.
- **Training and Drills:** Regular and realistic exercises ensuring workers understand roles, procedures, and equipment.
- **Communication and Coordination:** Robust internal and external communication networks to manage real-time information.

Role of Industrial Hygienists and OEHS Professionals

Industrial hygienists (IHs) and OEHS professionals play critical roles in translating expertise into practical action, including:

- Performing hazard assessments and recommending appropriate controls.
- Implementing protective measures for responders and workers.
- Conducting exposure evaluations and overseeing safe cleanup and recovery.
- Communicating risks clearly to workers and community stakeholders.
- Promoting comprehensive worker protections before, during, and after disasters.

Policy Recommendations and Call to Action

Key recommendations for stakeholders include:

- Establish comprehensive federal and state emergency preparedness standards.
- Integrate IH and safety expertise into emergency planning and management.
- Expand workplace-specific disaster communication systems.
- Incentivize proactive mitigation in high-risk facilities.
- Enhance professional training and credentialing for disaster readiness.
- Prioritize equity and inclusivity in disaster response strategies.
- Ensure transparent, post-disaster data collection and continuous improvement.

Conclusion

Disasters will continue to challenge our communities, but the resulting impacts can be significantly mitigated through proactive, coordinated action. Leveraging the expertise of safety professionals and industrial hygienists, strengthening regulatory frameworks, and ensuring preparedness across sectors are critical to protecting lives, safeguarding businesses, and enhancing overall resilience. Stakeholders are encouraged to collaborate with AIHA to advance these essential efforts.

Member Communications Toolkit

AIHA has provided the template letter below to representatives and LinkedIn posts for members to use in advocating for and raising awareness on this critical issue.

Template: Letter to Representative

[Your Name]
[Your Professional Title]
[Your Organization/Affiliation]
[City, State, ZIP]
[Email Address]
[Phone Number]

[Date]

The Honorable [Full Name]
[Title]
[Office Address]
[City, State, ZIP]

Dear **[Representative/Senator] [Last Name]**,

Subject: Urgent Support Needed for Strengthening Workplace Disaster Preparedness

As a member of the American Industrial Hygiene Association (AIHA) and an occupational health professional, I urge your support for enhanced federal and state measures to improve disaster preparedness, response, and recovery efforts in workplaces nationwide. Recent catastrophic events, including pandemics, hurricanes, wildfires, and severe weather, have highlighted critical vulnerabilities in workplace safety, endangering lives and livelihoods.

Despite clear evidence that comprehensive disaster preparedness significantly reduces harm, current workplace emergency standards remain insufficient and outdated. Surveys reveal that fewer than half of U.S. workplaces have adequate emergency response plans, leaving millions of workers and businesses at unnecessary risk. Particularly vulnerable are small businesses, healthcare providers, emergency responders, and essential infrastructure services.

I respectfully ask you, as a constituent and health professional, to:

- Support the swift finalization and implementation of OSHA's proposed Emergency Response standard to ensure robust protections for emergency responders and workers.
- Advocate for expanding the EPA's Risk Management Program to mandate comprehensive disaster resilience measures in industrial and chemical facilities.
- Encourage state and local jurisdictions to adopt enforceable standards for heat exposure and wildfire smoke protection, particularly in high-risk industries.

- Support targeted funding for disaster preparedness training, resource stockpiles, and equitable safety measures for small businesses and vulnerable worker populations.

AIHA and its members stand ready to provide technical guidance and support effective, science-based solutions. Together, we can better protect workers, businesses, and communities from the devastating impacts of disasters.

Thank you for your attention to this critical issue. I would welcome the opportunity to discuss this further or provide additional technical input to your staff.

Sincerely,
[Your Name]
[Your Credentials, if applicable]
[Your Organization or Employer]
Member, American Industrial Hygiene Association (AIHA)

Template: LinkedIn Posts

Post #1: Highlighting the Urgency of Disaster Preparedness

Headline: Enhancing Disaster Preparedness: An Urgent Workplace Safety Priority

Body: Each year, disasters such as hurricanes, wildfires, pandemics, and extreme weather cause unprecedented harm to workers, communities, and businesses across the U.S. Yet many workplaces remain dangerously unprepared, risking lives and livelihoods.

The data is clear: workplaces with comprehensive disaster plans experience far fewer injuries, deaths, and disruptions. It's time for urgent action:

- Finalize and enforce OSHA's proposed Emergency Response standard
- Strengthen EPA's Risk Management Program for industrial and chemical facilities
- Expand state-level protections for wildfire smoke and heat exposure

Join AIHA in advocating for proactive disaster preparedness—protecting workers, businesses, and communities nationwide.

#IndustrialHygiene #OccupationalHealth #DisasterPreparedness #WorkplaceSafety #PublicHealth #AIHA #PolicyAction

Post #2: A Call to Action for Safety Professionals

Headline: Leading the Way in Workplace Disaster Preparedness

Body: Industrial hygienists and safety professionals play a crucial role in protecting workplaces and communities from the escalating threats posed by natural and human-made disasters. From pandemics and hurricanes to wildfires and severe weather, our expertise can make a life-saving difference.

AIHA's recommendations:

1. Establish comprehensive workplace emergency preparedness standards
2. Integrate safety expertise into emergency planning and management
3. Expand targeted disaster communication systems for workplaces
4. Promote proactive hazard mitigation in high-risk sectors
5. Enhance professional training in disaster readiness
6. Prioritize equity and inclusivity in preparedness efforts
7. Ensure transparent data collection and continuous improvement

Let's leverage our knowledge to build safer, more resilient workplaces. Together, we can lead this critical effort.

#AIHA #IndustrialHygiene #SafetyLeadership #DisasterPreparedness #OccupationalSafety #PublicHealth #PolicyAdvocacy

Peer Review Form

DOCUMENT REVIEWED (NUMBER AND TITLE): DISASTER PREPAREDNESS, RESPONSE, AND RECOVERY		
Requestor (Name / Site / Organization):	**Date Received:**	**Review Requested by Date:**
Reviewer (Name / Site / Organization):		**Review Completed Date:**
Instructions to Reviewer:		

No.	Page	Document Section	REVIEWER COMMENT, SOURCE REQUIREMENT VIOLATION, and PROPOSED RESOLUTION	FINAL RESOLUTION	Open, Accepted, or N/A?
1	14	"Enhance Professional Training and Credentialing in Disaster Readiness"	P. 11 - advanced certification - is this in addition to a CIH? ABIH tried this around 25 years ago for hazardous waste and IAQ. It did not go well within the profession. The hazardous waste advanced certification was dropped and the IAQ I believe was cancelled soon after. If you had it, you could retain it, but no additional people could qualify. The feeling was this diluted the CIH and made CIH's without the designation less qualified in that particular area. I'm not saying don't do it, but, have we thought about that.	We have added some language here as track changes for consideration but it sounded like something AIHA needs to weigh in on in. "*Any effort to develop advanced credentials should build upon existing certifications such as the CIH, complementing rather than fragmenting professional recognition. Lessons learned from past specialty credential initiatives within the profession underscore the importance of aligning new programs with established standards and maintaining the integrity and value of core certifications.*"	
2		Para			
3		Para			
4		Para			
5		Para			
6		Para			