

Hazard Vulnerability Assessment



VERSION 6-11-19

NEWHERC Hazard/Vulnerability Analysis

Overview

This document outlines the most likely hazards that may affect Northeast Wisconsin HERC Region 3 and the communities within the various counties. These are by no means the only possible incidents that could occur in the Region. All agency planners and emergency management personnel are urged to provide flexibility within standard operating procedures or guides in their specific agency plans.

The Northeast Wisconsin HERC Region 3 conducts briefings on the potential hazards and vulnerable areas of the community on a yearly basis. Changes are made to the hazard/vulnerability analysis yearly based on a continued assessment of risks, and with input from the various counties through inclusion of their various HVAs into this document.

This document describes the event, its predictability historical frequency and controllability. It then overviews the duration, scope and impact. Under each event description is then the shortcomings of the Region in terms of areas that need to be addressed.

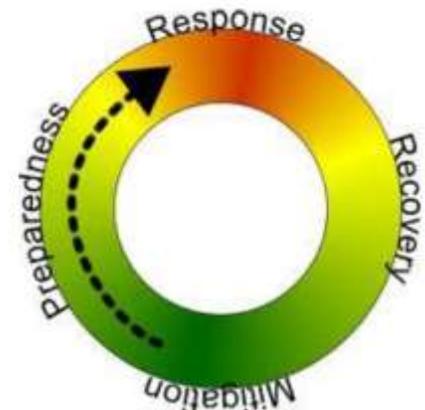
Conducting a Hazard Identification and Vulnerability Assessment (HIVA) is the initial step supporting the emergency management process of hazard preparedness, response, recovery, and mitigation. Hazard identification refers to the systematic use of all available information to determine which types of hazards might affect a community, county, or region; along with their driving forces and typical effects. Vulnerability assessment refers to the estimation of scale and severity these hazards may have on the people, property, environment, and economy of a community. The Disaster Mitigation Act (DMA) of 2000 states: “natural disasters, including earthquakes, tsunamis, tornadoes, hurricanes, flooding, and wildfires, pose great danger to human life and to property throughout the United States; greater emphasis needs to be placed on identifying and assessing the risks to States and local governments (including Indian tribes) from natural disasters.” This document refers to and compliments existing federal and state plans and HIVAs / Threat Analysis, as well as specifically including most County completed HVAs in Region 3 of the WI Healthcare Coalition. Where appropriate, efforts were made to maintain a structure and terminology consistent with the current state of WI Threat Hazard Identification Risk Assessment (THIRA) and any existing HVAs at County level.

Use and Limitations

It should be noted that this assessment constitutes a “snapshot in time” for planning purposes and should not be consider comprehensive and absolute. Any referenced hazard and vulnerability data, maps and tables were developed or utilized from existing data sources, not from field surveys.

The purpose of this document is to:

- (1) Identify hazards, natural and technological, disease, integrated threat with the potential to threaten the people, property, environment, and economy of Region 3 WI - NEWHEREC.
- (2) Estimate the risk or likelihood of a hazard’s occurrence based on historic and other factors.
- (3) Evaluate the Region’s vulnerability to each hazard and estimate the potential severity of loss or impact.



Risk and Severity Matrix

Hazards vary in their frequency of occurrence and the damage they can incur. Because of this, we’ve separated and ranked each according to risk and severity. Risk is determined by the historic frequency or their likelihood to occur in the near future. In most cases we used a 25-year span to measure probability. Where a high severity event has occurred historically, but not in the past 25 years; this was also listed (example earthquake). Events that can be expected annually or are likely to occur every 25 years are considered high risk. Events that have a moderate likelihood of occurring within a 25-year span are considered moderate risk, while those expected beyond 25 years are considered low risk. Severity was determined somewhat subjectively based on the scale of people, property, environment, and economy vulnerable to loss or damage from each hazardous event.

Risk and Severity Categories

High Risk Low Severity	High Risk Moderate Severity	High Risk High Severity
Moderate Risk Low Severity	Moderate Risk Moderate Severity	Moderate Risk High Severity
Low Risk Low Severity	Low Risk Moderate Severity	Low Risk High Severity

Risk Severity Matrix of Hazards

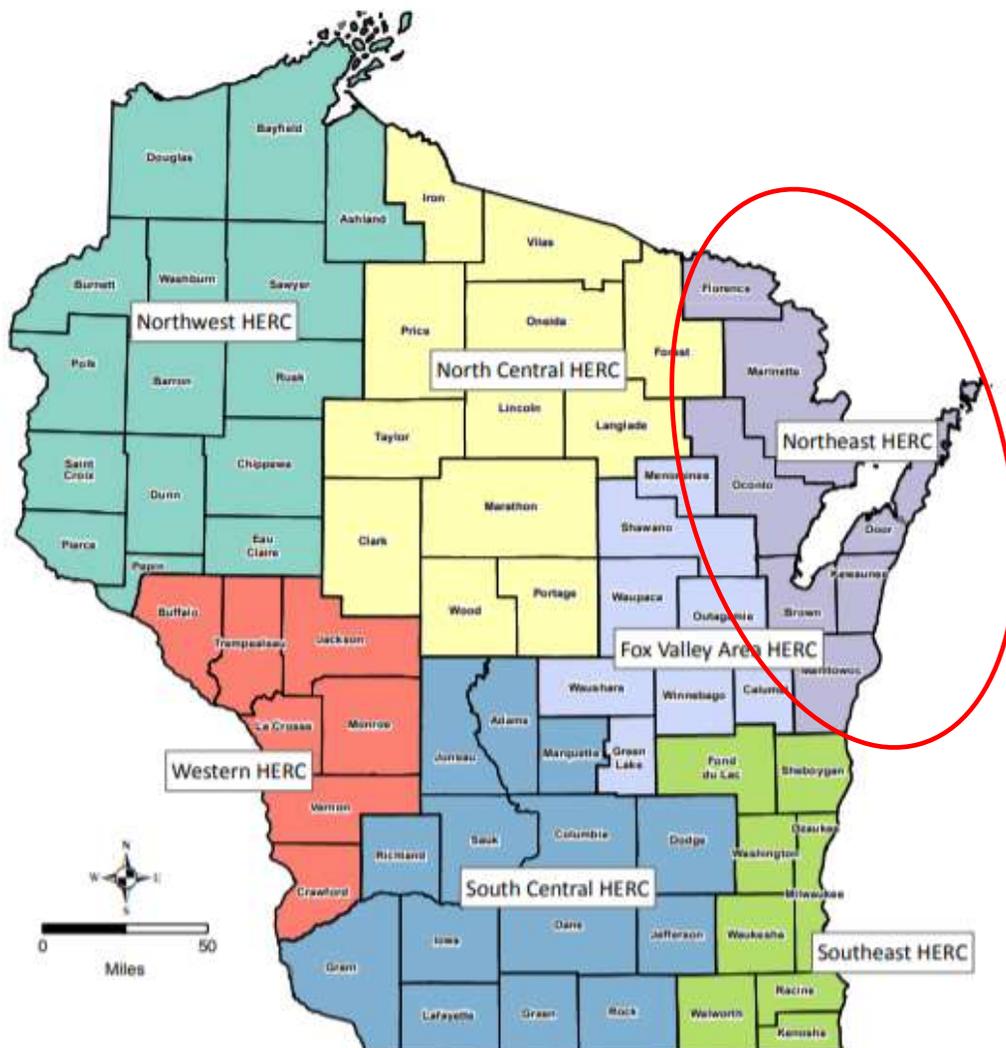
Energy Emergency	Severe Storms	Earthquake
Drought	Flooding, Landslide, HazMat	Wildfire, Terrorism/Civil Disorder
Search and Rescue	Tsunami, Volcano, Transportation Mass Casualty	Radiological, Epidemic

Location and Background of Assessment Area

This assessment is related to the Wisconsin Healthcare Emergency Readiness Coalition (HERC) region 3 – NEWHERC. This region includes the following:

- Manitowoc, Kewaunee, Door, Brown, Oconto, Marinette, and Florence Counties
- Oneida Tribe
- Federal Institutions including VA medical Center Green Bay, USCG Stations

Wisconsin Healthcare Emergency Readiness Coalitions (HERC)



Identified Threats, Risks and Vulnerabilities

The various identified threats are below. The threats are ranked in accordance to a combination of probability and intensity of any impact. Rankings are not necessarily statistically accurate, rather a balance of factors.

Major Storm Including Blizzard, Ice, Derecho, or Sustained liquid precipitation – Ranking = 1

Predictability of a storm affecting Northeast Wisconsin HERC Region 3 is certain, based on the past experience of several major storms, including recent urban flooding, and historic ice storms in the 1920s, 1970s. Minimum warning time for these impacts in Northeast WI due to the difficulty in weather prediction in this geography will only increase the impact.

Frequency of a major storm is historically high. The Wisconsin climate is changing (USEPA Aug 2016), In the past century, most of the state has warmed about two degrees (F). Heavy rainstorms are becoming more frequent, and ice cover on the Great Lakes is forming later or melting sooner. In the coming decades, the state will have more extremely hot days, which may harm public health in urban areas. The frequency of floods in Wisconsin. Over the last half century, average annual precipitation in most of the Midwest has increased by 5 to 10 percent. But rainfall during the four wettest days of the year has increased about 35 percent. During the next century, spring rainfall and annual precipitation are likely to increase, and severe rainstorms are likely to intensify. Each of these factors will tend to further increase the risk of flooding (USEPA 2016 report).

Controllability of weather damage is limited to the mitigation measures of building codes, land-use management, and setback and elevation criteria.

Duration of the actual onslaught is from several minutes to hours, to even days depending upon the forward movement of the storm and the weather patterns over the Great lakes that tend to stall weather patterns. The duration of the aftereffects varies with the severity of the storm and can range from several days to several years.

Scope of damage ranges with the severity of the storm, from minimal damage to nearly total destruction of community facilities, business and residences. Building collapses may create major mass casualty incidents, and although rare; have increased in the last 5 years almost 20-fold. Sustained power outages including gas supply interruption is the most likely impact to regional partners. This would be the most significant and impactful consequence to a major storm. People who require powered medical equipment would be highly vulnerable to an energy emergency. The loss of power during periods of cold weather could lead to cold related casualties.

Intensity of impact ranges with scope and location of damage. Depending on the situation and geographical locations involved the impact of power outages and duration would vary dramatically.

Shortcomings within the region include:

Lack of recognition that a major storm would be devastating. It has been well over 25 years since the last significant sustained event that impacted more than one county. This was before most reliance on internet infrastructure. Additional training and a true exercise should be completed.

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Many facilities in the Region, especially long-term care is without adequate generators or plans to fill staff and manage communications using alternate methods.

Mitigation would include better recognition and initial response training. Facilities should conduct a facility hardening survey and consider what impacts would occur with long term outages.

Flood – Ranking = 2

Predictability of flooding on the Oconto, Fox, East, Wolf, Menominee, Pike, Peshtigo, Suamico, Pensaukee, Manitowoc, Pine and Pensaukee Rivers and Duck, Spring, Big, Creek are all at seasonal and storm risk for increased flooding. Recent cuts in allocated budget has removed or eliminated maintenance on many river gauges. Most streams and rivers in Northeast Wisconsin HERC Region 3 are not monitored.

The lakes have been rising steadily for five years and are getting an extra boost from April and May 2019 heavy rainfall and melting snow from the winter, according to a U.S. Army Corps of Engineers report released May 6th, 2019. Water levels on Lake Superior and Lake Erie are expected to break records set in the 1980's sometime during summer 2019 according to the Army Corps' Detroit district office.

Frequency of moderate flooding in the 20th century was at least once a year; major flooding is generally limited to once in five years. In more recent years (2018 and 2019) flooding has become almost a continuous phenomenon. A severe urban flood in March 2019 in Brown County caused the evacuation of 76 homes and destroyed several mobile homes.

Controllability of flood damage is limited to mitigation measures of land-use management and elevation criteria. Clearance of debris along streamways and managing storm sewer inundation and sediment cleaning can also affect flooding.

Duration of actual onslaught is from several hours to several days. Lake Superior, which holds more water than the other four combined and sends them a continuous flow through its southern outlet, is about 15 inches above its long-term average level for this time of year, and 9 inches higher than a year ago. Lake Erie is 26 inches over its long-term average. The US Army Core of Engineers estimate likely flooding to continue over the next several years as the lakes are at a record high water level. The current episode of high water on the Great lakes and its tributary river systems is likely to last from 3-5 years and is much part dependent on northern snowpack.

Scope of damage ranges with severity of flooding. Lake / Bay coastal flooding and shoreline erosion will pose threats, especially during heavy storms. Facilities that may be impacted should have robust plans and not plan on any significant local support, as the flooding impacts more than one facility.

Intensity of impact ranges from a few houses with water damage to several hundred houses, commercial structures, and healthcare facilities involved, including public infrastructure road washouts and bridge damage.

Shortcomings within the region include:

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The years of 2018 and YTD 2019 should have demonstrated the vulnerabilities of the current system in regard to flooding. The lack of shelters for special needs and long-term care staff and the difficulty in evacuation plans should be addressed.

Mitigation would include better recognition and initial impact and plans that address these eventualities. Facilities should conduct a facility hardening survey and consider what impacts would occur with long term outages. Facilities should not just use the term “calling 911” in their plans as the communities also have little ability (nobody can shelter a 200-bed assisted or skilled nursing facility at a community shelter).

Communicable Disease Outbreak – Ranking = 3

Predictability of an outbreak is difficult but is based on epidemiological monitoring of human and animal populations. There are three kinds of predictions. The first kind is to do with the risk that an exotic or novel infection will appear in a given host population. This risk has been formally estimated for, for example, rabies or foot-and-mouth disease. The second kind is that, given an infectious disease is present, how fast will it spread, how many people or animals will be affected and how long will it persist for? This has been attempted for a wide variety of infectious diseases including Acquired Immune Deficiency Syndrome (AIDS), bovine spongiform encephalopathy (BSE) and FMD. The third kind of prediction is to do with what might happen if an intervention is attempted: if people or animals are to be treated, vaccinated or quarantined in an attempt to contain an epidemic then how many, how selected and how quickly? There is a substantial literature addressing this type of question.

Frequency -Wisconsin public health law requires the state health department and all local health departments to monitor and respond to 73 distinct communicable diseases and any disease outbreak. Each year approximately 35,000 cases of communicable disease are reported to public health departments in Wisconsin. Effective surveillance and early intervention are critical to prevent more people from becoming infected. Frequency in WI has increased in the last 10 years from a low in the 1980s. A major TB outbreak in Sheboygan in 2014 was of significant concern

Controllability and communicable disease prevention and control is the cornerstone of public health. Waves of severe illness and death due to communicable diseases have occurred throughout history, including smallpox prior to its eradication, the bubonic plague in 14th century Europe, the influenza pandemic of 1918 and, close to home, the massive waterborne outbreak of cryptosporidiosis in Milwaukee in 1993. Advancements in clean water and refrigeration and the development of safe, effective vaccines have greatly decreased such threats; however, common diseases still cause outbreaks and new communicable diseases emerge. The worldwide AIDS epidemic, multidrug-resistant tuberculosis, West Nile virus, severe acute respiratory syndrome (SARS), avian influenza and drug-resistant staphylococcus infections are all reminders of our continued vulnerability to communicable diseases. The resistance of certain organisms to treatment has increased the risk of an outbreak. Ring vaccinations and quarantine are key methods of control.

Duration of an incident can range from several weeks to months.

Scope of damage ranges with the intensity and type of illness. Several existing and emergency influenza viruses are believed to have the greatest potential for Pandemic.

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These include H5N1 and H7N9 and various emerging influenzas. The deadliest diseases with the highest potential impact to the Region would include:

- Multi Drug Resistant TB Event (MDR)
- Drug Resistant Pneumonia
- Resistant Malaria Strain
- Hemorrhagic Fever
- Influenza Pandemic
- Uncontrolled Emerging Disease

It has been studied that 30-40% of the workforce will be impacted by a communicable disease outbreak.

Intensity of an accident depends on the severity of the accident the initial response by local and regional health staff.

Shortcomings within the region include:

Lack of recognition and analysis on impacts to individual facilities. Minimal practice outside of Public Health in regard to vaccination administration, testing etc has occurred.

Mitigation includes continued training, participation in drills, planning cycles and situational awareness. First responders should analyze staffing patterns and determine contingency plans in the event of loss of 40-60% of staff. Exercises including quarantine security and EMS protocol changes should be conducted.

Enemy Attack / Cyber – Ranking = 4

Predictability of enemy Cyber-attack is considered likely based on an assessment of risks and past actual events. Northeast Wisconsin HERC Region 3 is a target rich environment. Predicting a Cyber-attack is difficult. A lone individual can pose a threat whether motivated as a state actor, criminal intent, or simple challenge hacking. Cyber-attacks are often detected too late. According to reports on reported cyber-attack incidents, most victim organizations do not know that their systems have been breached until they are informed by organizations or individuals external to the victim organization's physical or logical network. Predicting cyber-attacks isn't an exact science. But this area of cybersecurity is developing quickly, and we are making great strides. It will become more and more reliable as we continue to collect and analyze new strains of malware, identify their origins, and determine how they are used and what damage they can inflict. We also are getting better at monitoring attack patterns within specific vertical industries and using the information to help predict attacks on other organizations in the same – and related – verticals.

Frequency of a cyber-attacks are on the increase, and the likelihood is high regardless of population density.

Controllability It's important to remember that predictive tools and techniques don't replace other cybersecurity components. Organizations still need firewalls, [endpoint protection](#), intrusion detection, web filtering and all the other necessary layers of [security](#).

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Most importantly the ability to control a cyber-attack is most influenced by the end user and his or her ability to identify something that is not ordinary.

Duration of an attack could be from a one-time event of a few minutes but is more likely to last weeks or months.

Scope of damage of a cyber-attack could be localized to widespread, and they are usually targeted at a given application or software product. The worst damage would likely be influenced if an attack was directed towards community infrastructure or public utilities.

Intensity of impact would vary based on the scope of damage. Property, and the economic impact of certain partners would be impaired.

Shortcomings within the region include:

Lack of training in consequence management. True continuity of operations planning, and exercises.

Mitigation would include better recognition and initial response training and exercises.

Hazardous Materials Accident-Transportation – Ranking = 5

Predictability of a transportation hazardous-material accident is uncertain, however, hazardous materials are commonly transported into, out of and through Northeast Wisconsin HERC Region 3 in quantities which, if released into the environment during an accident, could be harmful or injurious to humans, animals, property, and the economy. These include transport via rail, maritime, and highway transport.

Frequency of a transportation hazardous-material accident ranges from ten to fifteen minor or potential incidents a year to one of major consequence every three to five years.

Controllability of a hazardous-material disaster is limited to local plans, state and federal routing controls, state trucking law enforcement and training of response and management forces.

Duration of an incident can be for as little as a few minutes to as long as several days or weeks.

Scope of damage ranges with the severity of the incident but is generally localized.

Intensity of impact ranges with the scope of damage and location of the incident.

Shortcomings within the region include:

Lack of recognition of chemical use in the community. Although data is available, many first responders have little idea of what is used in the community. Poor urban planning has allowed multi family, skilled care facilities and schools to be constructed near these chemical facilities. Risk has been misunderstood or not fully addressed. Training of responders although the focus for many years has become lessened as responders have had to use training funds and time to address other integrated threats such as shootings. Lack of training for many first responders in recognition and management

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of high-level events. Although Regional Teams exist the time frame between getting them to the scene is long in some areas of the region.

Healthcare facilities such as Urgent Care centers and Hospital Emergency Departments cannot keep up on the OSHA mandated annual patient decon training. Many move persons into positions without the prerequisite training in both clinical hazmat treatment and patient decontamination.

Mitigation would include better recognition and initial response training. Communities should conduct a commodity study and ensure they have antidote kits available where required. Medical facilities need to better address staff training at receiving locations including Urgent Cares and Emergency Departments. Since In terms of transportation of Hazardous Materials, they are not static and change. Thus, identifiable and mitigatable hazard management becomes more difficult.

Major Structural Fire – Ranking = 6

Predictability of a major fire is based on the condition of buildings and facilities in the community along with the impact of weather. Predictability is based on fire and building inspections and enforcement.

Frequency of a major fire is based on the experience that Northeast Wisconsin HERC Region 3 fire departments experience individually on average extra alarm fires each year. Of these, in 2018 thirty-five exceed the third alarm. A fifth or greater alarm has been experienced on a once per year basis.

Controllability of a major fire is limited to the efforts of firefighting and support agencies operating within the community pre-incident plan. The ability to prevent large blocks or areas from igniting may be critical to community survival.

Duration of a major fire could be from a few hours to several days.

Scope of damage may community wide, affecting life, property, and the economy.

Intensity of impact of a major fire is that life, property, and the economy may be destroyed. A fire in a key community healthcare facility may mean the facility is not usable for many weeks or months. In the rural part of NEWHEREC Region 3 this would be very impactful.

Shortcomings within the region include:

Lack of recognition that volunteer fire force staffing is down almost 50% from 10 years ago. The inability to attract and retain volunteers in much of the region has an impact that has yet to be studied fully. This includes longer response times, fewer crews and in some cases the dissolution of an agency.

Mitigation includes a study to understand the impact of this real issue already occurring.

Hazardous Materials Accident-Fixed Site – Ranking = 7

A hazardous material (HAZMAT) refers to any liquid, solid, gas or sludge, including any materials, substance, product, commodity or waste, regardless of quantity, that exhibits any of the characteristics or criteria of hazardous material or waste described in various OSHA, DOT, DHS, USEPA and USCG regulations. These include waste oil and petroleum products. Incidents involve the unintentional or intentional release of hazardous materials, which because of their physical, biological, or chemical makeup, pose a threat to the life, health, environment, or property around them. Hazardous materials may also be released as a secondary result of a natural disaster like earthquakes or floods. Some but not all of the hazardous materials that have been identified by this HVA include fuel spills, chemical release, sewage and manure spill, methamphetamine labs, bulk road waste, and radiological release.

Predictability of a fixed site hazardous-material accident is uncertain due to lack of fixed site monitoring equipment. Hazardous materials are commonly used and produced in Northeast Wisconsin HERC Region 3 in quantities which, if released into the environment during an accident, could be harmful or injurious to humans, animals, property, and the economy. Although great care is taken in most use of extremely hazardous materials, accidents have happened on an annual basis.

Frequency of a fixed site hazardous-material accident ranges from five or more significant incidents a year to one of major consequence every five years.

Controllability of a fixed site hazardous material disaster is limited to OSHA, USCG and SARA Title III enforcement, LEPC activities, Haz Mat, state, federal and private sector team response, local plans, zoning, and training of response and management forces for both public and private sectors.

Duration of an incident can be for as little as a few minutes to as long as several days or weeks.

Scope of damage ranges with the severity of the incident but is generally localized unless vital community infrastructure is located nearby. See listing of Northeast Wisconsin HERC Region 3 SARA Title III sites. There are several Chemicals of Vulnerability (CV) used in Northeast WI counties of Marinette and Brown which if released could expose large populations to exposure that could cause mass casualties.

Intensity of impact ranges with the scope of damage but may impact on surrounding facilities and populations. Impact is greatest in the areas where CV chemicals are used, and the limited amount of antidote kits that exist.

Shortcomings within the region include:

Lack of recognition of chemical use in the community. Although data is available, many first responders have little idea of what is used in the community. Poor urban planning has allowed multi family, skilled care facilities and schools to be constructed near these chemical facilities. Risk has been misunderstood or not fully addressed. Training of responders although the focus for many years has become lessened as responders have had to use training funds and time to address other integrated threats such as shootings.

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Lack of training for many first responders in recognition and management of high-level events. Although Regional Teams exist the time frame between getting them to the scene is long in some areas of the region.

Healthcare facilities such as Urgent Care Centers and Hospital Emergency Departments cannot keep up on the OSHA mandated annual patient decon training. Many move employees into positions without the prerequisite training in both clinical hazmat treatment and patient decontamination.

There is too great of a reliance and assumption that a local Fire Department will manage and or handle an event on behalf of an organization. Within the Region, trained community-based hazmat teams exist in the Cities of Green Bay, Manitowoc, Marinette. Those organizations have mutual aid agreements with many of the surrounding counties for response. However, local response agencies should maintain basic level capability even though they rely on these regional teams. Local capability would include the ability to assess a situation and to decontaminate patients at the Operations Level of HAZWOPER.

Mitigation would include better recognition and initial response training. Communities should conduct a commodity study and ensure they have antidote kits available where required. Medical facilities need to better address staff training at receiving locations including Urgent Cares and Emergency Departments. Since Hazardous Materials are a static thing and are not going away; it is an identifiable and mitigatable hazard that should not be ignored.

The Region has greater risks farther from metropolitan areas (North of Green Bay) due to longer regional team response times.

Fuel and/or Commodity Shortage – Ranking = 8

Predictability of a fuel or commodity shortage is based on the condition of world events, international tensions, transportation systems and strikes along with the impact of severe weather.

Frequency of a fuel or commodity shortage is limited to historical events. In the last 5 years Northeast Wisconsin has lost a key refined pipeline link from Milwaukee to Green Bay. This has resulted in all refine products distributed through the regional hub in Green Bay to be trucked or barged into Green Bay. Seasonal weather, Ice Pack and other impacts have caused minor shortages.

Controllability of a fuel or commodity shortage is limited to the mitigation measures of conservation and rationing.

Duration of a fuel or commodity shortage could be from a few days to several months.

Scope of damage may be widespread, affecting life, property, and the economy depending on which product is involved.

Intensity of impact of a fuel or commodity shortage is that life, property, and the economy would be seriously impaired. Generator fuel for healthcare facilities is the largest identified risk.

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Shortcomings within the region include:

Lack of recognition and analysis on impacts to individual facilities. Lack of real planning in terms of how fuel or shortages of key food prep or clinical supplies and rationing will occur. Having a phone number to an alternate supplier in the same region as the impact is not a plan.

Mitigation includes a real understanding of the impact to the facility in the event of shortages.

Aircraft Accident – Ranking = 9

Predictability of an aircraft accident is based upon increased air traffic, unpredictable wind shear conditions, and other unknown contingencies.

Frequency of aircraft fatal or injurious accidents historically has been three in twenty years, two of which were minor incidents. The most impactful aircraft incident in NEWHERC Region 3 was a crash of a corporate jet (Lear) into a Morning Glory Dairy facility in April 2001. The crash killed the pilot and caused six persons to be transported with second- and third-degree burns. The impact also caused an Ammonia Leak when it impacted the dairy's refrigeration system.

Controllability of aircraft accidents is limited to mitigation measures of air traffic control, land-use management of landing and takeoff approaches, and the state of readiness of local response services.

Duration of an incident can range from as short as a few minutes to as long as several days or weeks.

Scope of damage ranges with the intensity of the accident but is always localized. Passenger aircraft crash sites will create mass casualty events.

Intensity of an accident depends on the severity of the accident and the location, passenger load and the type of involved aircraft.

Shortcomings within the region include:

Lack of recognition and analysis on impacts to individual facilities. Although we practice a drill every few years at only the larger airports in Green Bay and Appleton; they are scripted, and the chaotic events of a real mass casualty and or fatality event are hard to replicate.

Mitigation includes continued training, participation in drills, planning cycles and situational awareness.

Tornado – Ranking = 10

Predictability of tornadoes in Northeast Wisconsin HERC Region 3 is uncertain but has become more reliable as Doppler radar has become improved over time.

Frequency of a major tornado F4 or above, based on past history, is approximately one every ten years, with two or three minor occurrences F3 and below, including straight line shear winds, yearly.

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Controllability of tornado damage is limited to local plans and building codes and rapid warning.

Duration of actual onslaught is relatively short.

Scope of damage ranges with the severity of a tornado, varying from moderate to total destruction.

Intensity of impact ranges with scope and location of damage.

Shortcomings within the region include:

The need for additional training in regard to incident management. This includes the fact that these events lead to infrastructure damage and utility interruptions that can take long periods to repair.

Dam Failure – Ranking = 11

Predictability of a dam failure is based upon inspections by the Army Corps of Engineers and WI DNR Dam Safety Staff and their classifications of dams and levees. Northeast Wisconsin HERC Region 3 has many earthen and concrete dams. It is possible that water inundations, earthquakes or human activity impact expectations of dam safety.

Frequency is limited to historical events and projection of dam failure based on current conditions.

Controllability of a dam failure is based on dam safety inspection/compliance programs and maintenance.

Duration of failure onslaught would be rapid, causing flooding of a major portion of local communities.

Scope of damage ranges from minor flooding to flooding of several hundred homes and businesses.

Intensity of impact ranges with scope of damage, water body and location of population in the vicinity of downstream, dam impacts.

Shortcomings within the region include:

Lack of recognition and analysis on impacts to individual facilities. Although each dam or levee likely has a plan and map showing inundation, most facilities downstream have never analyzed their impact. Facilities should analyze their facilities to see where impacts may occur and plan accordingly. This would include the ability to implement a rapid evacuation plan.

Mitigation includes training, participation in drills, planning cycles and situational awareness.

Agricultural Disaster – Ranking = 12

Predictability of an agricultural disaster is based on the condition of transportation systems and the impact of severe weather.

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Frequency of an agricultural disaster is limited to historical events.

Controllability of an agricultural disaster is limited to the measures of conservation and rationing.

Duration of an agricultural disaster could be from a few weeks to several years.

Scope of damage would be widespread, affecting agricultural production and distribution, prices, property, and the economy.

Intensity of impact of an agricultural disaster is that life, property, and the economy would be seriously impaired in NE WI. The most significant event would be of Agroterrorism infecting large groups of people.

Shortcomings within the region include:

Lack of recognition and analysis on impacts to individual facilities. Although the impact to regional healthcare may be low, its overall community impact and the workload on Public Health partners would be substantial.

Mitigation includes participation in drills, planning cycles and situational awareness.

Civil Disturbance – Ranking = 13

Predictability of a civil disturbance is dependent on intelligence about the specific area involved. Areas of concern include the State Prison in Green Bay, Military Shipyard in Marinette, Slaughter process facilities in and around Green Bay, various county jails in Region 3, Veteran's Hospital, various Tribal facilities, Animal Shelters and schools of higher education. All may attract protests by groups or individuals that could escalate to civil disturbances. In addition, the threat of an active shooter in any situation is unpredictable.

Frequency of a civil disturbance is limited to historical events with the note that tensions existed in Northeast Wisconsin HERC Region 3 during the late 1960's and 1970's and tribal spearing protests in the 1980s but no events occurred of significance since.

Controllability of a civil disturbance is dependent on rapid response of local law enforcement supplemented by available State police resources. National Guard involvement will need to be coordinated.

Duration of a civil disturbance could be from a few hours to more than a week.

Scope of damage would be limited, affecting life, property, and the economy in the immediate area only. Impact to healthcare facilities may be impacted by restricted employee movement.

Intensity of impact of a civil disturbance is that there may be additional strains on public facilities and resources along with other peaceful protests.

Shortcomings within the region include:

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Lack of recognition and analysis on impacts to individual facilities. Although in the last several years extensive training and supplies have been focused on the first responders, we have found that many of the smaller individual facilities have yet to tackle the problem of managing a hostile event.

Mitigation includes training, participation in drills, planning cycles and situational awareness.

Wild-land Fires – Ranking = 14

Predictability of a wild-land fire is based on the condition of natural cover along with the impact of weather. Of concern are large areas of NEW HERCS northern geography.

Frequency of a wild-land fire is that Northeast Wisconsin HERC Region 3 fire departments respond to over 950 natural cover and wild-land land fires each year (WI NIFRS).

Controllability of a wild-land land fire is limited by the capability to rapidly mobilize and deploy firefighting resources, and DNR and US Forest Service Assets/

Duration of a fire could be from a few hours to several days.

Scope of damage could be widespread, but historically has limited effect on large populations life, property, and the economy.

Intensity of impact of a wild-land land fire is that life, property, and the economy can be affected. It is not expected that any major impact to the region would occur.

Shortcomings within the region include:

Lack of recognition and analysis on impacts to individual facilities. Although a wildfire would not affect the entire region, individual facilities should have a realization if they are in an intense, cooperative areas; and maintain defensible space around the facility.

Mitigation includes participation in drills, planning cycles and situational awareness.

Drought – Ranking = 15

Predictability of a drought or other water shortage is based on the condition of public and private water sources and the impact of severe weather.

Frequency of a drought or other water shortage is limited to historical events, however in Northeast WI drought is less likely based on regional flooding and precipitation.

Controllability of a drought or other water shortage is limited to the mitigation measures of conservation and rationing and the provisioning of alternate sources of supply.

Duration of a drought or other water shortage could be from a few days to several years.

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Scope of damage could be widespread, affecting life, property, and the economy or localized to area of the county.

Intensity of impact of a drought or other water shortage is that life, property, and the economy would be seriously impaired.

Shortcomings within the region include:

Lack of recognition and analysis on impacts to individual facilities. Although the impact to regional healthcare may be low, its overall community impact can be high. It was only as recent as 2012 that the region had water shortages and wells running dry due to drought.

Mitigation includes participation in drills, planning cycles and situational awareness.

Major Terrorism Chemical, Biological, Explosive – Ranking = 16

Predictability of a Major enemy attack is considered low as based on an assessment of tension and world events. Northeast Wisconsin HERC Region 3 has minimal military or target value save two potentials; this is modified by the possibility that the Nuclear Power Station in Two Creeks or any of the NFL Football Games in Green Bay WI may be a target of enemy attack.

Frequency of enemy or terroristic attack is limited to historical evidence and the past conflicts. The frequency is not documented as a successful occurrence has not occurred.

Controllability of enemy attack is vested with the state and federal government. Federal and state organizations have resources and personnel for the four phases of attack activity. State and local governments have preparedness, response, and recovery capability, including shelter management and radiological monitoring, but local government must deal with initial response alone until outside help is mobilized if possible.

Duration of an attack could be from a period of a few minutes, if the incident is nuclear, to weeks or months if it is conventional, biological, or chemical in nature.

Scope of damage of an enemy attack would be widespread, if not statewide. Life, property, and the economy would be affected. The attack could initiate many of the hazards identified below.

Intensity of impact would be localized, unless multiple targets were impacted. Life, property, and the economy would be seriously impaired.

Shortcomings within the region include:

Lack of training for many first responders in recognition and management of high-level events. Although Regional Teams exist the time frame between getting them to the scene is long in some areas of the region.

Mitigation would include better recognition and initial response training. Training of local command staff in high level Incident Management is also a need.

Fixed Nuclear Facility Incident – Ranking = 17

Predictability of a fixed nuclear facility incident is uncertain given the industry experience since T.M.I. Various firms have operated the Point Beach and Kewaunee Nuclear Power Plant for almost fifty years. During this period, there have been no serious incidents. Northeast Wisconsin HERC Region 3 Emergency management has responsibility for both Emergency Planning Zones and fifty-mile Ingestion Pathway Control Zone actions within Northeast Wisconsin HERC Region 3.

Frequency of a fixed nuclear facility incident above the classification level of an alert is estimated at one in 30 years (NRC data)

Controllability of a fixed nuclear facility incident is limited to operator training and maintenance/safety programs at the facility along with the Nuclear Regulatory Commission's resident inspector program and the utility off site emergency training.

Duration of actual onslaught could range from hours to days.

Scope of damage ranges from the sheltering of people in homes to evacuation of the ten-mile E.P.Z. within Northeast Wisconsin HERC Region 3 and interdiction of the 50-mile food ingestion pathway.

Intensity of impact ranges with scope of damage.

Shortcomings within the region include:

Lack of recognition and analysis outside of the ingestion areas on impacts to individual facilities.

Mitigation includes a real understanding of the impact to the facility in the event of an event.

Earthquake – Ranking = 18

Although extremely rare in Wisconsin, this event well worth mentioning as any occurrence would have significant impact.

Predictability of an earthquake in Northeast Wisconsin HERC Region 3 is limited to early history (1886) and knowledge of tectonic studies. The county is vulnerable to the Wabash Valley Fault in Illinois, and faults in lower MI. Prediction is very difficult.

Frequency of earthquake activity is limited to a very few examples from 1900 to present.

November 1968: The strongest central U.S. earthquake of the twentieth century, measuring 5.9, was centered in south central Illinois. Tremors were felt in Wisconsin stretching from La Crosse to Green Bay south.

August 1947: A moderate earthquake centered in Michigan was felt in Wisconsin from as far north as Medford to the southeast corner of the state.

May 1947: An earthquake centered in Lake Michigan near the Wisconsin shore just south of Milwaukee caused minor damage and was felt from Kewaunee to the north to Waukesha to the

Illinois border. **January 1986:** An earthquake with a magnitude of 5 on the Richter scale centered

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30 miles northeast of Cleveland, Ohio, was felt in nine states, including Wisconsin, and Canada.

March 2012: An earthquake near Clintonville in Waupaca County, estimated at a magnitude of 1.5, rattled windows throughout the county.

Controllability of earthquake damage is limited to local plans and building codes.

Duration of earthquake damage in Northeast WI from a few minutes to long period of time for recovery.

Scope of damage ranges with the severity of the quake. However, it is noted that Northeast WI has not been involved in programs to quake proof buildings. Thus, most buildings are susceptible to damage even from minor quakes. In general Wisconsin has a very low comparative expectation of earthquakes.

Intensity of impact ranges from minor impact to major damage.

Shortcomings within the region include:

Lack of recognition that an event could occur. Mitigation should include a general awareness that although it is rare, we have the potential to be affected if ever a large event would occur.

References:

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