HAZARDOUS CHEMICAL RELEASE

Essential Elements of Information – (EEI)

EEI contain Situational Awareness information on People, Systems, and Services Providers that is critical to acquire in the first and perhaps second operational periods. Specific elements stated here may not apply in every event. Additional elements must be generated as the event evolves through Recovery.

Impact of Event or Scenario

The release of hazardous chemical may accidental or deliberate. There may be an explosion associated with the release causing physical trauma. as well as chemical effects. A deliberate release will result in a criminal investigation which is the responsibility of ESF 16 Law Enforcement. Immediate response to a hazardous chemical release regardless of cause is ESF 10 Hazardous Materials and ESF 4 Firefighting in support of comparable county agencies.

Some chemicals can cause burns to the eyes and skin. Some can cause toxic effects if absorbed through the skin, but the gravest danger is the inhalation of gaseous chemicals or chemical vapors. Responders at and near the scene will require personal protective equipment (PPE). PPE Level C – through A will be needed based on the hazardous characteristics of the chemical released.

Depending on weather conditions and characteristics of the chemical, the release may create and extensive downwind hazard. Depending on the speed, direction, and duration of the downwind hazard, local decisions will be made to shelter in place or evacuate. Evacuation may require setting up hasty shelters. There may not be time initially for special needs shelters.

Those closest to the release may require decontamination and shelter support for longer time periods than those further downwind. This may allow time for establishment of special needs shelters. Responders and victims who are contaminated will require decontamination at the receiving hospital as well as hasty decontamination provided near the scene. Fatalities at the chemical release site may also require decontamination prior to further processing.

There may be chronic physical and behavioral health effects lasting days to weeks to months that will require medical surveillance. Those with existing respiratory condition will be most vulnerable and require the greatest post-event care. In some areas, large numbers of transient vulnerable populations (tourists) will require post-event assistance, as well.

The EEI listed below will be needed by the ESF 8 Situation Unit to determine current situation and forecast response strategies during the immediate response phase and chronic condition surveillance phase.


People

People include vulnerable populations and the general population. Vulnerable populations may be classified as static or transitory. Static populations consist of people who have medically complex conditions, those who are functionally disabled, frail elderly, and children who are two years old and younger. Transitory populations are those who have chronic medical conditions, seniors in high-rise buildings, and children older than two years old. Populations in both categories who are downwind from a chemical release may be at greater risk for respiratory effects and eye damage depending on the characteristics of the chemical that is released.

Populations in both categories are also vulnerable to extreme stress from a chemical release event with a resultant evacuation and/or decontamination. Persons with disabilities may have physical difficulty complying with broadcast shelter-in-place requirements.

Vulnerable populations at or near the chemical release may require decontamination. They may need extra assistance, direction, and time to go through the decontamination process thus increasing the hazards from chemicals on their clothing and skin. They may also be more susceptible to the effects of hypothermia following decontamination.

There may be immediate acute affects from a chemical release with debilitating chronic health problems lasting over a long period of time. Behavioral health issues may also require monitoring and treatment over time.

Systems

Systems include healthcare, medical care, infrastructure, transportation, and communications. Many chemicals are persistent in the environment and will leave a toxic residue at and near the initial release point. This residue must be decontaminated before affected systems can be returned to general use.

Service Providers

Service providers are those who provide health and medical care and support services. Service providers at or near the chemical release point will be most affected and will have to cease operations until decontamination can be accomplished and certified. Service providers that are downwind from a toxic
chemical release will have to temporarily cease operations and evacuate or shelter-in-place until the inhalation threat has passed. They may incur casualties among their staff that will affect recovery. Service provider clients and patients may arrive at their facility with contamination on their clothing, shoes, and skin. Service providers must be capable of decontamination arriving patients or contacting Fire-Rescue or HazMat decontamination assets.

Immediate Response Phase

- Chemical identification and characteristics.
- Downwind hazard – Aloha software modeling – input from ESFs 4 and 10

People

- Number of households and facilities in downwind hazard zone.
- Vulnerable populations in downwind hazard zone at risk for a poor health outcome.
- Facilities and households ordered to evacuate.
- Number of injuries and type
- Number of fatalities at the scene and those who expire from injuries or chemical effects.
- Rumors being spread by the chemical release – coordination with ESF 14.

Systems

- Systems within the downwind hazard (ALOHA)
- Location and populations of shelters – general and special needs.
- Need for Family Re-unification services and Behavioral Heath teams.
- Locations of decontamination stations and number of persons processed.
- Need for temporary clothing replacement and blankets for persons who are decontaminated.
- Need for resupply of PPE and compressed air to responders.
- Distribution of ChemPac antidotes, if applicable.
- Locations and missions for RERAs.

Service Providers

- Health and medical facilities in the downwind hazard zone.
- Number of injuries and type.
- Hospitals receiving injuries.
- Need for Hospital and other service providers for decontamination augmentation support.
- Need for PPE and decon resupply.
Chronic Condition Surveillance Phase -- Essential Elements of Information

People

- Numbers and locations of persons with chronic conditions resulting from the chemical release.
- Types of chronic conditions being seen.
- Trends in morbidly and mortality.
- Numbers of persons with lingering behavioral health issues
- Rumors being spread among and about persons with the chronic effects – coordination with ESF 14.

Systems

- Epi Strike Teams/Staff providing chronic condition surveillance.
- Regional Disaster Behavioral Health Assessment Teams deployed - number and location
- Restocking of ChemPac antidotes if needed.
- Information on coping/stress reduction/psychological first aid

Service Providers

- Health and medical support being given to persons with chronic conditions.
- Shortfalls in support that need to be addressed