

REGIONAL STANDARD OPERATING PROCEDURES

Hazardous Materials Response

#: 105.08

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PURPOSE:

The purpose of this plan is to provide the Sierra Vista regional response agencies with an organized plan to mitigate an emergency involving hazardous materials and to ensure safe and professional actions by all involved agencies.

SCOPE:

These guidelines contain regional response procedures for emergencies involving hazardous materials:

- Liquefied Petroleum / Natural Gas
- Carbon Monoxide
- Flammable and Combustible Liquid Leaks
- Corrosives Incidents
- Clandestine Laboratory Incidents
- Hazardous Device Response
- Oxidizers
- Radioactive Materials
- Cryogenics
- Poisons
- Biological Agents

First Responder Operations personnel are classified by OSHA 29 CFR 1910.120(q)(6)(ii).

INTENT:

It is the intent of this procedure to enhance existing systems and provide a consistent level of hazardous materials response capability among the regional response agencies. This plan should complement existing plans and is not intended to supplant or usurp existing emergency response plans of any agency. This procedure is intended to comply with the minimum requirement of Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120(q)(1).

RESPONSIBILITY:

The role in a regional response to a hazardous materials incident is to ensure life safety, incident stabilization, property conservation, and environmental protection. A regional response does not in any way relieve the Authority Having Jurisdiction (AHJ) of their responsibility.

SAFETY:

Hazardous materials incidents encompass a wide variety of potential situations including fires, spills, transportation accidents, chemical reactions, explosions and similar events. Hazards involved may include toxicity, biological, flammability, radiological hazards, corrosives, explosives, health hazards, and combinations of factors. Company officers should remember that hazardous materials technicians cannot operate offensively until all the required components of OSHA 1910.120 (q) are in place. Offensive tactics requires technician level hazmat personnel, specialized equipment, and an incident action plan.

Avoid premature commitment of companies and personnel to potentially hazardous locations. Proceed with caution in evaluating risks before formulating a plan and keep uncommitted companies at a safe distance.

With responder safety in mind, attempt to identify the type of materials involved and the hazards presented before formulating a plan of action. Look for labels, markers, and shipping papers; refer to pre-fire plans; ask for information from personnel at the scene (responsible party, truck drivers, specialists, etc).

Utilize reference materials carried on apparatus such as the DOT Emergency Response Guidebook (ERG) and contact other sources for assistance in sizing up the problem as needed.

Transportation emergencies are often more difficult to mitigate than those at fixed locations. The materials involved may be unknown, warning signs may not be visible or obscured by smoke and debris, and/or the driver may be killed or missing. D.O.T. Haz-Mat marking systems may be inadequate due to some products in quantities of up to 1,000 lbs. are not required to be placarded, and combinations of products involved may only be labeled with a "Dangerous" placard. Sometimes only the most evident hazard is identified, while additional hazards are not labeled.

Do not touch any suspicious devices. Avoid use of radios or cell phones near suspicious devices. Electronic signals from radios, cellular phones, or other electronic systems may cause certain devices to detonate. Evacuate the area if the threat is credible.

HAZMAT RESPONSE PROCEDURES

Base response activities upon information received and the type of hazardous material released.

Still Haz-Mat Response

1 Engine (1st Due Company)

Minimal danger to life, property, and the environment. Container size may be a small drum, bucket, package or bag and has a low fire/explosive potential. Limited to the initial area of involvement and unlikely to spread. Evacuation limited to the immediate area. Personnel can contain or confine with available resources. This includes dispatches to the following incident types:

1. Small spills/release of a known substance. Quantity less than 55 gallons.
2. Odor of Natural Gas or Propane (see Flammable Gas Response below)
3. Flammable/Combustible Liquid Leaks/Spills (see Flammable Liquid Response below)
4. Southwest Gas Co. support such as residential gas line rupture
5. Carbon Monoxide Alarms (refer to Regional SOP for Carbon Monoxide Incidents)
6. Corrosives spills or leaks - small quantity
7. Law Enforcement Support for Clandestine Drug Labs
8. Law Enforcement & Bomb Technician Support for Hazardous Devices, including Simple Pipe Bombs, Military Ordinance, IED, Vehicle Borne Explosive Devices, Incendiary Devices and Chemical Pressure Devices

With responder safety in mind, personnel must don full structural fire protective clothing (SFPC) and SCBA when responding to hazmat incidents. Approach the incident from an uphill and upwind position if possible. Uphill positioning is preferable when winds are variable. The following items should be considered as a minimum for a safe and effective initial response.

1. Position all vehicles far enough away from the release to allow for a safe retreat if necessary (300 feet minimum if dealing with an unknown product).
2. Establish a command post.
3. From a defensive posture and safe distance, attempt to determine whether the product is a gas, liquid, or solid.
4. Avoid contact with the product being released. Remember that many hazardous materials are colorless, odorless vapors.
5. Make sure that the initial size up includes the type of situation found and proper response routes for incoming units.
6. Consider all drums, containers, cylinders, and tanks as being full, and the materials in them to be hazardous materials until proven otherwise.

7. Establish an initial isolation zone based on information in reference materials such as DOT Emergency Response Guidebook (ERG), Cameo, and scene factors. Ensure all individuals without proper PPE (police, fire, civilian and EMS) are removed from the initial isolation zone.
8. From a safe distance attempt to identify the product via placards, labels, UN numbers, chemical names, etc. Also, attempt to determine the type/size of the container, amount of product being released, and the name of the shipper or manufacturer. Refer to the Emergency Response Guide (ERG).
9. RESCUE - The decision to attempt a rescue should be based on a risk versus benefit assessment, taking into account limited resources, lack of adequate PPE, responder risks and assessment of victim viability.

If incident complexity has surpassed the single resource's ability to safely mitigate the incident, then the Company Officer should balance the call to a "HazMat-Upgraded" response and take the following actions:

1. Fall back to a safe & upwind location to a minimum of 1,000 feet from the source. Base your standoff distances on the DOT Emergency Response Guidebook and scene factors.
2. If not yet done so, establish a Command Post.
3. Evacuate non-contaminated citizens and other responders as needed.
4. An Area of Safe Refuge (ASR) should be designated inside the initial isolation zone for people who are considered contaminated. These people should not be brought out of the ASR until they have undergone emergency decontamination. Runoff is not a primary issue in this circumstance.
5. Set a perimeter.
6. Provide gross decontamination of exposed victims and transport as needed
7. Gather information from a defensive safe position in an attempt to identify the product(s).
8. The decision to attempt a rescue should be based on a risk versus benefit assessment, taking into account limited resources, lack of adequate PPE, responder risks and assessment of victim viability.

HazMat-Upgraded Response

In addition to the first due engine company, a Haz-Mat Upgraded request will summon the response of 1 Chief Officer, Truck 363 (Haz-Mat Specialty Unit), and 1 Medic Unit.

HazMat-Upgraded incident types involve calls with limited to moderate danger to life, property, and the environment, and/or may have the potential of involving additional exposures. This includes dispatches to the following incident types:

- HazMat incident with any exposed/contaminated victim(s)
- Commercial gas line rupture
- Release of 40 pounds or more hazardous solid

- Release of 55 gallons or more hazardous liquid
- Localized exposure and evacuation area
- Limited moderate potential for fire/explosion

The resources summoned to the HazMat-Upgraded response are to continue to operate in a defensive posture. Operations in any IDLH environments require minimum Federal & State mandated complement of Technician level HazMat personnel and specialized equipment/PPE. The following items should be considered as a minimum for safe and effective HazMat-Upgraded response:

1. Establish scene control: Perimeter and Safe Zones
2. Employ air monitoring and use of meters pertinent to the incident to confirm and monitor the Safe Zones
 - a. pH with hydrated pH paper for corrosive vapors
 - b. Radiological monitoring
 - c. Volatile Organic Compounds (VOC)
 - d. Oxygen concentration
 - e. Toxicity
 - f. Hydrogen Sulfide (if location dictates)
 - g. Carbon Monoxide
1. Provide gross decontamination of exposed victims
2. Provide further investigation and research from a defensive posture.
3. Determine threat to exposures such as waterways, groundwater, airborne exposures, etc.
4. Determine if an IDLH environment exists, or the probability thereof
5. Determine the necessity of a 1st Alarm Haz-Mat response which would summon the response of the CCHMRT.

1st Alarm Haz-Mat Response

In addition to the Haz-Mat Upgraded balance of resources, a 1st Alarm Haz-Mat Response will summon the response of the following additional resources: 1 Chief Officer, 1 Engine Company, 1 Medic Unit, Command Unit, Cochise County HazMat Response Team (CCHMRT), Emergency Manager notification, Emergency Operations Center (EOC) notification.

1st Alarm Haz-Mat response incident types involve calls with high danger to life, property, and the environment. The release poses a threat beyond the immediate release area and affects exposures. May involve multiple hazardous materials.

- Moderate release of toxic, corrosive, or flammable vapors that pose a life safety hazard
- Release from rail tank car, tank truck, stationary storage tank, multiple medium size containers.
- Presence of IDLH environments

- Conditions which require the use of chemical protective PPE and/or specialized equipment.

2nd Alarm Haz-Mat Response

These incident types involve calls with extreme danger to life, property, and the environment. Mitigation is beyond the capability of CCHMRT and regional resources. These incidents may cover large geographical area and may be long term deployment.

A 2nd alarm response is to be requested by the Incident Commander in conjunction with the Cochise County Emergency Services Coordinator and may summon the response of State RRT (TFD, NWFD), 91st Civil Support Team (CST), etc.

FLAMMABLE GAS RESPONSE:

Natural gas is much lighter than air and will usually dissipate rapidly in the outside environment. Inside buildings, however, it tends to pocket, particularly in attics and dead air spaces. The flammable limits are approximately 4% to 15% in air.

Propane Gas is heavier than air and will not dissipate as readily as natural gas. Propane is a liquefied petroleum gas (LPG). When released from its pressure container, propane will become a gas and will hug the ground and accumulate in low-lying areas. Propane has a flammable range of 2% to 10% in air.

Propane and Natural Gas are considered non-toxic, however both gases displace oxygen and can result in asphyxiation in confined spaces.

Liquefied Petroleum Gas (LPG), also referred to as simply propane or butane, are flammable mixtures of hydrocarbon gases used as fuel in heating appliances, cooking equipment, and vehicles.

Flammable gas concentration percentages can only be determined by a combustible gas instrument. Do not rely on gas odor (mercaptan) since the mercaptan odorant can be scrubbed off, such as when leaking through damp soil.

Request Southwest Gas (SWG) utility company response for incidents involving natural gas. For incidents involving propane / LPG contact the product supplier.

Burning gas should not normally be extinguished since this would change the situation from a visible to an invisible hazard with explosive potential. Fires should ideally be controlled by stopping the flow.

1. Position apparatus upwind and at a safe distance. Remember that apparatus can be an ignition source.
2. Perform a size up and gather information as needed.
3. Evacuate people still in the area. Request the assistance of law enforcement. Consider using the apparatus PA system if needed.
4. Ensure that the appropriate gas company has been contacted (SWG or LPG supplier).
5. If gas is leaking from a meter, shutting down the meter may be a good decision if the following safety considerations are in place.
 - a. The meter is in an outdoor environment, not located within any type of a gas holding containment such as under an awning, heavy tree crowns, between structures, etc.
 - b. The breach is believed to be small to moderate
 - c. All possible ignition sources are accounted for and deemed outside of the hot zone. This includes running vehicles, electric panels, electric devices, etc.
 - d. Personnel must don full structural fire protective clothing (SFPC) and SCBA.
 - e. A hose line is laid and charged.
 - f. Back-up personnel are available.
 - g. Engine Company personnel must not introduce any ignition sources. Examples include- flashlights, cameras, radios, sparking tools or static discharge.

Incidents involving pipelines, service lines, complex meter leaks and/or commercial structures are to remain in the defensive mode and support Southwest Gas personnel as needed. The following items should be performed in support of Southwest Gas mitigation efforts.

1. Provide a backup team in full SFPC with SCBA during Southwest Gas entry operations.
2. Have a charged hose line readily accessible.
3. Lightly wet the ground adjacent to the leak with a fog pattern to reduce static build up.
4. Assign a medic unit on stand-by until the leak has been mitigated.

The utilization of combustible gas indicators by engine company personnel shall only be used to identify hazardous locations in relation to responder operations. Engine company personnel are not to deem an area "safe" without further verification from Southwest Gas Co. Complex incidents involving natural gas should include a haz-mat team response as needed.

The same considerations should be taken when responding to calls involving liquefied petroleum gas (LPG). During LPG incidents involving the tank, the supplier company responsible for the tank should be notified. If a leak is suspected inside a residential structure, personnel should consider shutting off the gas supply to the residence and informing the resident to contact a certified maintenance/repair company.

FLAMMABLE LIQUID RESPONSE:

Flammable liquids present particular problems for fire protection, health, safety, and environmental protection. Challenges include fire extinguishment, ignition prevention, and disposal of spills. All three of these may be involved in the same incident.

Extinguishment

The preferred agent for flammable liquid firefighting is AFFF/Class B Foam (Aqueous Film Forming Foam).

Attack on any flammable liquid fire should be made with Class B Foam when available. When the fuel is ethanol, or ethanol based (E-10, E-85 or E-95), fire attack should utilize an Alcohol Resistant Aqueous Film Forming Foam (AR-AFFF) due to the high alcohol content of the fuel. The use of alcohol resistant class B foam is also required when dealing with any polar (water soluble) flammable liquid. The class B foam should be applied at the percentages specified by the foam concentrate manufacturer.

The extinguishing action of Class B Foam is based on its ability to rapidly cover the flammable liquid surface with a film. This film prevents the escape of flammable vapors, but may have difficulty sealing against hot metal surfaces. The application of Class B Foam should be gentle to avoid breaking the seal and agitating the liquid below.

In addition to the previously listed response considerations, flammable liquid releases should include the following considerations.

1. Small spills may be picked up with absorbent and properly disposed of.
2. Spills over 25 gallons require notification to the NRC, LEPC and ADEQ.
3. Consider Fort Huachuca Fire Department crash rescue apparatus if large amounts of foam are needed.
4. Large spills and leaks involving large containers will require a Haz-Mat team response. First responders should take only defensive actions.
5. When large spills or containers are involved in fire, water application may not be the most prudent course of action. Company officers will have to weigh the environmental benefits of allowing a burn off against life safety and property conservation factors.

HAZARDOUS DEVICE RESPONSE:

Initial reports of a hazardous device or bomb threat will receive a response of one Engine Company and one medic unit.

1. The ATF Bomb Standoff Distance chart should be referenced to assist in implementing minimum standoff distances based on the suspect device.
2. Dispatch shall notify appropriate military personnel on all incidents involving military ordinance.
3. The local jurisdictions' law enforcement agency should take command. Resources from Pima County, DPS, SVPD, and CCSO will most likely be requested as well as.
4. A Terrorism Liaison Officer should be notified on all hazardous device incidents and bomb threats.
5. Company officers must remain aware of the potential for a secondary explosive device or other secondary attack.
6. An explosives dog handler can be requested from Fort Huachuca through Dispatch.
7. Post explosion response will be based on a risk versus benefit analysis.

CLANDESTINE DRUG LABORATORIES

Clandestine drug laboratory investigations, seizures, and arrests of suspects are all law enforcement agency matters.

Personnel that encounter a suspected laboratory should withdraw to a safe location as soon as it is possible, using discretion on actions and radio conversation. If a situation warrants additional immediate action (e.g. evacuation of surrounding areas or rescue), the decision should be based on a risk versus benefit assessment, taking into account limited resources, lack of adequate PPE, responder risks and assessment of victim viability. Requests from local law enforcement agencies for fire department assistance with clandestine laboratory incidents warrant a response request for the Cochise County Hazardous Materials Response Team (CCHMRT).

The recognition of the presence of a clandestine drug laboratory that is involved in a fire may not occur until after fire control has been achieved. The initial indications of the presence of a laboratory may be subtle or very apparent. Depending on the products involved, a fire in a lab can spread faster and burn with more intensity than what might normally be expected. The color of the flames may appear to be an unusually bright or dark orange, or the flames may be of several different colors. An unusual color of smoke or odor may also be present. A laboratory that is involved in a fire situation should be viewed pessimistically by Command and include a balance of the incident with the appropriate level of a hazardous materials assignment. A defensive mode may be appropriate for personnel safety. Standard protective clothing and SCBA use may not afford complete protection. An acceptable alternative is to

protect any exposures and allow the fire to burn, providing the products of combustion being generated are not complicating the problem further. Runoff may also create a problem and diking may be necessary.