Volume 24
No. 3
September, 2011

REGION 6 LEPC Update

Steve Mason, EPA Region 6
mason.steve@epa.gov

Hilary Gafford, Weston Solutions
hiliary.gafford@westonsolutions.com

This month, we will be looking at various articles on emergency response & preparedness, plus more information on our upcoming HOTZONE Conference in October.

Steve & Hilary

12th Annual HOTZONE Conference

The goal HOTZONE is to train local, state and federal responders for safe and efficient response to releases of hazardous materials which threaten public health and the environment. This includes bringing in the best instructors in the country for our students !!!

People who attend include local fire, police, emergency management, EMS, and state & federal response personnel who participate in incident command or in immediate support at the scene of a hazmat response or terrorist event in Federal Region 6.

Last year, over 700 people attended the conference from Region 6, as well as from across the country and world !!

We will have a track focused on activities and ideas for LEPC members.

HOTZONE 12 will be held: October 20-23, 2011 -- Crowne Plaza Hotel – Reliant Park -- Houston, TX

Tentative List of Classes Being Held this Year

Pre-Conference Workshops

- RAILCAR SAFETY COURSE
- HAZMAT OFFICER COMPETENCY LAB
- ETHANOL EMERGENCY RESPONSE
- HAZMAT IQ 4 STEP SYSTEM
- MARITIME HAZARDOUS MATERIALS RESPONSE
- CHEMISTRY OF HAZARDOUS MATERIALS WITH FIELD I.D. LAB TESTING
- EMERGENCY RESPONSE TO ANHYDROUS AMMONIA
- TACTICAL CHEMISTRY FOR EMERGENCY RESPONDERS
- LEPC 101
- GOVERNMENT GRANTS: HOW DOES THE FUNDING WORK?
- HOUSTON FIRE DEPARTMENT INCIDENT COMMAND SIMULATOR
- ADVANCED ALOHA

Plenary Talks

- TEXAS TERRORISM
- HISTORY & FUTURE OF EPCRA AND LEPCS
- CANCER – THE "OTHER" LINE OF DUTY DEATH

Classes

- HAZMAT RESPONSE TO SICK BUILDINGS
- NEW DETECTION TECHNOLOGY
- THE COLORIMETRIC CONUNDRUM
- FIRST DUE HAZMAT: "MUST-KNOWS, MUST-DOS"
- GIS FOR HAZMAT PREPAREDNESS AND RESPONSE
- SUICIDE BOMBING - AN ISRAELI PHENOMENON
- SURVIVAL IN THE HOT ZONE
- THERE IS NO SUCH THING AS "NERVE GAS"
- IS THERE SOMETHING OUT THERE?
- MACGYVER GAS DETECTION
- SO YOU WANT TO BE A HAZMAT MEDIC
- HAZMAT R.I.T.
- HAZMAT BRANCH OFFICER; TAG YOU'RE IT!
- HANDS-ON RADIATION
- EVIDENCE SAMPLING
- HAZMAT SAFETY
- PARTNERS IN HAZMAT
- RESPONDING TO MERCURY SPILLS
- PIPELINE EMERGENCY RESPONSE
- HAZMAT IQ
- STREET SMART SAFETY
- RESPONDING TO UTILITY EMERGENCIES
- CAN YOUR TEAM USE A RRAT?
- MEASURING PROGRESS IN CHEMICAL SAFETY
- THIS IS NOT A DRILL! - SOCIAL MEDIA TOOLS FOR EMERGENCY PLANNING, MANAGEMENT AND RESPONSE
- TECHNICAL REFERENCING
- IF YOU CAN'T MEASURE IT, YOU CAN'T MANAGE IT!
- RISK BASED APPROACH TO MONITORING AND DETECTION
- PUT THE FIRE BACK IN YOUR HAZMAT TRAINING
- HAZMATIQ FIRST RESPONDER OFFENSIVE (FRO)
- THE HAZMAT SCIENCE OFFICER
- SO YOU ARE THE HAZMAT OFFICER; ARE YOU READY TO GO?
- RECOGNIZING AND RESPONDING TO COMMERCIAL EXPLOSIVES INCIDENTS
- WHEN YOU'RE HOT, YOU'RE HOT
- NFPA 1991, 1992, & 1994; I'M CONFUSED!
- ILLICIT WMD AND DRUG LABS RECOGNITION & RESPONSE BOOT CAMP
- THE POST-PUCKER, PART TWO…AFTER THE MITIGATION IS COMPLETE
- INTEGRATED ADVANCED HAZMAT OPERATIONS DURING TERRORISM INCIDENTS
- HYDROGEN SULFIDE (H2S) SUICIDES
- HAZMAT TECHNOLOGY FOR THE TEAM LEADER
- TANK CAR DAMAGE ASSESSMENT
- MEASURING PROGRESS IN CHEMICAL SAFETY
- LEPC ENFORCEMENT OF EPCRA & RMP
- VOLUNTEER LIABILITY ISSUES
- LEPC OUTREACH: FACILITIES AND COMMUNITY
- DEER PARK LEPC EXERCISE

GO TO OUR WEBPAGE FOR MORE CONFERENCE INFORMATION and REGISTRATION, www.hotzone.org

Region 6 LEPC Coordinators

Arkansas	**Kenny Harmon**	**501-683-6700**	**kenny.harmon@adem.arkansas.gov**
Louisiana	**Gene Dunegan**	**225-925-6113**	**gene.dunegan@dps.la.gov**
New Mexico	**Don Shainin**	**505-476-9628**	**don.shainin@state.nm.us**
Oklahoma	**Tom Bergman** **Bonnie McKelvey**	**405-702-1013** **405-521-2481**	**tom.bergman@deq.ok.gov** **bonnie.mckelvey@oem.ok.gov**
Texas	**Bernardine Zimmerman** **Wade Parks**	**800-452-2791** **512-424-5677**	**Bernardine.zimmerman@dshs.state.tx.us** **wade.parks@txdps.state.tx.us**

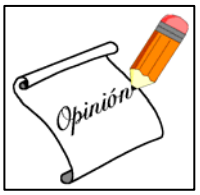
National Preparedness Goal


Department of Homeland Security
Homeland Security Presidential Directive/HSPD-8
"National Preparedness"
Implementation Concept

On March 30, 2011, President Obama released Presidential Policy Directive 8: National Preparedness (PPD-8), which focuses on strengthening the security and resilience of the Nation. FEMA is now asking for your input on the first milestone mandated by the Directive: a National Preparedness Goal (NPG). The Directive calls for development and maintenance of this Goal which defines the core capabilities necessary to prepare for the specific types of incidents posing the greatest risk to the security of the Nation.

The Goal will establish concrete, measurable, prioritized objectives to mitigate specific threats and vulnerabilities and emphasize actions intended to achieve an integrated, layered, accessible, and whole community preparedness approach while optimizing the use of available resources.

Since PPD-8 was signed, a range of stakeholders within and outside the Federal government, who have been involved through working groups, outreach sessions, and targeted engagement efforts, have worked to develop an initial draft of the NPG.



This document also builds extensively on the prior work of various stakeholder groups from around the Nation. Analytical efforts, task force reports, preparedness activities, best practices, and lessons learned over the last decade of large-scale and catastrophic events were critical in the development of this draft.

Now your input is needed. The feedback you provide will be crucial in achieving a comprehensive national preparedness effort.

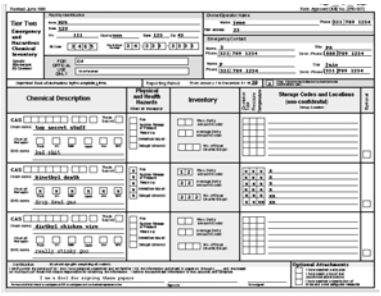
The comment period closes Friday, September 2nd. We apologize for this abbreviated timeframe; however, the final version of the NPG is due to the White House on September 25, 2011. Please review the draft elements of the PPD-8 National Preparedness Goal (Draft National Preparedness Goal (PDF)) at www.fema.gov/pdf/prepared/.npg.pdf and provide comments using the comment matrix (Comment Sheet (XLS)).

Send your comments to PPD8-Engagement@fema.gov. We look forward to hearing your thoughts, concerns, and suggestions on this first milestone, and look forward to continuing to engage the Nation in this effort.

Thank you for your input and support.
Lawrence M. Stanton
Director, Office of Emergency Management, FEMA

Tier I & Tier II Proposed Revisions

On August 8, 2011, the U.S. Environmental Protection Agency (EPA) proposed revisions to the Emergency and Hazardous Chemical Inventory Forms under Section 312 of the Emergency Planning and Community Right-to-Know Act (EPCRA). Over the years, stakeholders requested EPA to add new data elements to the forms that would be useful to improve community emergency response plans.



In this action, EPA is proposing new data elements to make the forms more useful for state, local, and tribal agencies. EPA is also proposing to revise some existing data elements to make reporting easier for facilities.

The proposed changes are intended to meet the purpose of EPCRA, which is to encourage and support state and local planning for emergencies caused by the release of hazardous chemicals and to provide citizens and governments with information concerning potential chemical hazards present in their communities.

You can read the proposed changes at: http://www.regulations.gov/#!documentDetail;D=EPA-HQ-SFUND-2010-0763-0001. EPA will accept comments on the proposed revisions for 60 days after publication in the Federal Register. Comments can be submitted at http://www.regulations.gov.

Organizations and facilities subject to section 312 of EPCRA and its implementing regulations found in 40 CFR 370 may be affected by this rule. This proposed rule does not impose any new requirements on state, local, or tribal governments. For more information on general EPCRA requirements, please visit: http://www.epa.gov/emergencies/content/epcra/index.htm.

For information on the Tier I and Tier II forms, visit:
http://www.epa.gov/emergencies/content/epcra/epcra_storage.htm#tier2

TRANSCAER ® Anhydrous Ammonia Training Tour Materials Available Online!

Earlier this Spring TRANSCAER® launched its nationwide Anhydrous Ammonia Training Tour, a multi-stakeholder effort to educate and train officials in states across the country on emergency response to anhydrous ammonia incidents. To date, the tour has held hands-on educational training workshops all across the country.

The new website, www.transcaer.com/aa-tour, is a "one-stop shop" for the most comprehensive online training program on Anhydrous Ammonia.

Materials available include Anhydrous Ammonia Tour training videos, handbooks, PowerPoint presentations and instructor and student guides that address emergency response, chemical properties, transports and nurse tanks, and railcars, as well as promotional print materials including posters and brochures. All of the Anhydrous Ammonia Training Tour materials were developed by a team of seasoned experts from across various industries.

The website contains practical tools that give emergency responders the information they need to manage an anhydrous ammonia release incident.

The "Emergency Response" section of the online training module reviews: Real-life plume modeling used to calculate air pollution concentrations; weather impacts on ammonia releases; how to determine and protect downwind threats; other environmental impacts and controls; and containment options for anhydrous ammonia releases.

For more information visit www.transcaer.com/aa-tour.

Why Emergency Response Plans Should Include the Railroad

Thanks to John Cease, Arizona Gatekeeper

Railroads shouldn't be mysterious entities in an emergency, yet local emergency response plans often don't cover them to a necessary extent. The railroad poses all the threats and liabilities of a major highway system, with one exception: A rail disaster is usually monumental and frequently becomes a multijurisdictional event.

Railroads are pioneering the transportation sector with intermodal, improved track conditions; computerization; fuel efficiency; employee optimization; and mergers.

Yet railroads remain, next to domestic airlines, the safest form of transportation. Rail accidents for 2010 totaled 1,830, which included 261 highway grade crossing fatalities, 451 trespass fatalities, 20 rail employee fatalities and 4,272 nonfatal employee injuries, according to the Federal Railroad Administration (FRA) 2010 safety results.

Unlike other transportation systems, railroads are private and not dependent on the government.

However, emergency pre-planning for a large-scale rail event is critical, especially as railroads become the most profitable and efficient form of U.S. freight transportation.

Increased fuel costs and initiatives to be more environmentally friendly have translated into more trains, increased speeds and additional freight and passenger traffic. Industry experts predict that volume will double by 2035.

High-speed rail initiatives and increasing passenger loads will result in more railroad emergencies, which emphasizes the need for better local government emergency planning — increases in hazardous material (HAZMAT) transportation and passenger counts are not just homeland security concerns.

A comprehensive plan should address the following: Quickly determining the precise location, identifying access and staging areas, multijurisdictional coordination, potential for mass causalities and, if necessary, evacuation of rail passengers.

Consideration must be given to a HAZMAT factor that may result in releases or spills. Emergency management should be prepared for the worst-case scenario. To ignore the railroad in your emergency plans would be like ignoring a major interstate highway or airport in your jurisdiction.

Understanding railroad basics can significantly enhance emergency responses.

Here are specific questions emergency management needs to address when forming a rail emergency response plan:

- Does the plan identify each separate railroad in the response area?
- Does the plan include accurate emergency contact information for each railroad?
- Does the plan incorporate railroad milepost locations on response maps?
- Is the plan reviewed, verified and updated for continued changes?

In an emergency situation, quick decisions must be made regarding where, what and which types of public-sector resources are needed.

One of the most important factors is understanding the railroad milepost address system that's used by all railroads to identify geographic locations.

Like the street addresses in 911 computer-aided dispatch (CAD) or other map systems, the milepost address will be used by the railroad and needs to be integrated into local emergency planning because it's the only reference used by railroaders when noting a location on a rail line.

Failure to incorporate railroad mileposts into emergency plans could slow a meaningful response or cause an incident to expand exponentially. Consider an emergency reporting scenario:

Railroad engineer to dispatcher: "This is W43. Our train went into emergency. We are on the ground at about Milepost 678. We have HAZMAT cars 10 in from the rear. Advise 911. I can see a plume of smoke from here."

Railroad dispatcher to 911 center: "I have a train derailment with a possible HAZMAT problem at Milepost 678. We probably need a fire and police response."

911 center to railroad: "Where is Milepost 678? Can you advise the nearest highway intersection? What county are they in? Can they move to the train to the nearest crossing?"

This is the beginning of a long and tense emergency management disconnect, in which failure to incorporate mileposts into the emergency plan slowed response time.

In an emergency situation, quick decisions must be made on where, what and which types of public-sector resources are needed. As an emergency manager, you can ask a number of questions to enhance the public safety's response capability:

Where is Milepost 678 in relation to a highway map? Where can access be found to the right of way? Where can equipment be staged? What resources does the railroad have? How can you direct other jurisdictions to the milepost location?

Understanding how railroads are organized and operate is also critical to an emergency manager's portfolio of plans in order to interpret and act quickly on a railroad report to 911.

This information is rarely integrated on any 911 maps.

Perhaps most critical to that plan is an understanding of how railroads are addressed and operated.

Railroads have a mile marker system line address similar to that found on interstates and major highways. Railroads similarly call them the milepost.

The milepost (MP) addresses are set at approximately one-mile intervals along a designated line with an MP 0 starting point.

As the train moves away from MP 0, the milepost addresses increase sequentially. The distance between mileposts often varies because of rail line acquisitions or relocations, but this is not a problem because each milepost represents an unchanging specific geographic location on the line.

Switches, signals, sidings, bridges, tunnels, stations, highway grade crossings and other railroad infrastructure called "waypoints" between mileposts are assigned a milepost address.

The milepost address is usually carried out to the hundredth of a mile. For example, a highway grade crossing may have a railroad MP address of 251.67. That indicates that the crossing is 251.67 miles from MP 0 on that specific line.

Switches and/or signals that are remotely controlled from a control station are known as controlled points with names like CP MAX or CP 144.

Since railroads have multiple lines and branches, they usually have a "pre-line" alpha designator, ranging from one to three letters, such as A.

For example, on the CSX Railroad, MP A 68.71 is a grade crossing in rural Skippers, Va., on the A line, 68.71 miles south of Richmond, Va. When a railroad reports an event to a 911 call center, it will refer to the MP address. It is precise to them but is rarely integrated on 911 maps.

Public grade crossings have a street name or highway number. In addition, every public and private "at-grade" crossing has a railroad milepost address and a unique U.S. DOT six-digit number followed by an alpha qualifier.

That identifier must be posted at every rail crossing and is monitored by the FRA's grade crossing inventory.

Recent federal legislation requires the operating railroad to verify the inventory for accuracy every three years.

DOT Crossing Number is specific to the location of the crossing
The Mile Post (MP) is specific to the locations of the crossing

The highway grade crossing posting requires an emergency phone number, the operating railroad's name, the line's MP address and the DOT inventory identification number. There are approximately 211,000 such grade crossings in the United States, each with a unique DOT number.

If accurate, this posting provides good rail addressing information. An emergency manager could establish a base MP map of a rail line in the jurisdiction.

Because of the number of rail consolidations, abandonments, mergers and failure to update crossing inventory postings as required by law, the grade crossing postings and inventory have a significant error rate. Like any business, there are constant changes on the railroad.

It is important to remember that the person in charge of the local railroad's operation may be hundreds of miles away and never personally seen the line for which he is responsible. Verify and update your railroad file regularly.

If done correctly, GPS mapping of rail lines is viable and cost-effective for emergency management. Typically each rail owner's lines are GPS plotted and given an electronic footprint.

Integrating GPS mapped rail lines to include grade crossings, mileposts and other railroad infrastructure with existing maps promotes enhanced government emergency planning.

Several years ago, a National Transportation Safety Board investigative report recommended that the National Emergency Number Association facilitate the inclusion of railroad milepost markers on all local emergency response maps across the country.

Many railroads do GPS mapping of their lines, but the data is done for engineering and maintenance purposes, and doesn't encompass the land outside the immediate right of way.

By integrating two well addressed bases, railroads and the community, emergency outcomes can be improved.

Even if a jurisdiction doesn't GPS map its rail lines, there's a lot one can do to learn about rail operations:

- Identify the rail dispatch point of control for your jurisdiction;
- remember there may be more than one railroad in your area;
- know whom to contact in a rail emergency;
- understand the railroad's emergency response resources, the freight or passenger loads that can be anticipated, grade crossing locations and access points for difficult locations.

If you have a railroad in your jurisdiction, know the questions to ask so you can ensure that your emergency responders can perform to their peak capacity.

Nothing frustrates emergency responders like knowing there is a serious problem and not knowing exactly where it is or how to get there.

Understanding where Milepost 678 is should not be an emergency management mystery.

You may use or reference this story with attribution and a link to

http://www.emergencymgmt.com/disaster/Why-Emergency-Response-Plans-Include-Railroad.html

Chemical Dangers: Skin Protection from Hazardous Substances

Thanks to Jeffrey O. and Grace G. Stull, Arizona Gatekeeper

Highly toxic chemicals are present at nearly all fires nowadays — and it is getting worse.

Major chemical spills can often result in fatalities and certainly scores of individuals are treated at local hospitals for the effects of exposure when they occur.

The area fire departments are generally the first responders to these incidents, usually in their turnout clothing, but hopefully with qualified hazardous materials teams in support.

Fortunately, the specific targeting of civilians through terrorism releases such as the Sarin subway incident that occurred in Tokyo in 1995 have not been commonplace.

Yet firefighters are repeatedly exposed to chemicals in many of their emergency responses.

Perhaps one of the most pivotal cases was the Binghamton, New York State Office Building fire of 1981. PCB-filled transformers located in the basement of the building caught fire; dioxins and other hazardous chemicals from the resulting thick black smoke were carried throughout the building by the ventilation system.

The firefighters who responded to that fire did so in their normal turnout gear, which at the time consisted of full coats and pants, along with a demand-type SCBA.

Today, a number of those responding firefighters have succumbed to cancer, and with the enumerable investigations and lawsuits brought forward as a result of this incident, the seriousness of firefighter exposure to highly hazardous chemicals was brought to light.

Despite being nearly encapsulated in their clothing, the firefighters coming out of this fire had their underlying skin covered with black residue.

Follow-on medical analyses showed high degrees of persistence of chemical substances in their blood for many months following the fire.

The dangers of today

While it may be obvious for fires at chemical plants or other manufacturing facilities where chemicals are used, highly toxic chemicals are present at nearly all fires nowadays — and it is getting worse.

It is well documented that the burning of synthetic materials produces an innumerable amount of chemicals. The household fires of today all contribute to the "cocktail" of chemicals that firefighters are exposed to.

Firefighter exposure to chemicals occurs in several different ways. Certainly the most easily perceived way is through direct contact with a liquid that gets onto your clothing.

This type of exposure is localized and depending on where on your body this exposure occurs, the clothing may or may not be effective in preventing contact of the chemical with your skin.

A second and more common fireground exposure is by contact with fire smoke or other vapors at the fire scene. In this situation, your entire body is exposed and because turnout clothing is not vapor-protective, the fire gases and vapors will penetrate interfaces and other portions of your ensemble where it can come in contact with your skin.

Clothing contamination

Another and more insidious form of exposure is the contamination of your clothing itself.

Any liquid contact may leave traces of the chemical in your clothing, while vapors can penetrate clothing and permeate into material.

The persistency of these chemicals will depend on the characteristics of the chemical. For some example, some relatively non-volatile chemicals (chemicals that do not easily evaporate) will tend to stay in the materials.

Similarly, liquids with low surface tensions that easily wet surfaces will tend to absorb into materials more easily. What is less known is that the soot particles that blacken clothing represent one of the more serious contamination hazards to firefighters.

Soot is made of small carbon particles, which act like "sponges" to the chemicals in the air. Chemical gases and vapors are adsorbed by the soot and can stay in the soot for a very long period of time.

The retention of chemicals in the clothing can provide a long lasting, chronic-like exposure of firefighters to hazardous chemicals.

SCBA use

Most firefighters believe that the wearing of their self-contained breathing apparatus during emergencies will prevent their exposure to hazardous chemicals, other than any direct liquid contact.

SCBA are effective and since their implementation have served to provide outstanding protection to firefighters in the past several decades. The correct use of SCBA in firefighting including overhaul has dramatically improved respiratory protection.

However, inhalation is but one route of exposure. Skin absorption is also a significant route of exposure to many chemicals. Some chemicals can produce acute or chronic effects through skin exposure alone.

While intact skin is a good barrier to many substances, it can be compromised by being covered, which opens the pores and makes it more susceptible to permitting the penetration of chemicals.

In addition, some parts of the body have skin that is more easily affected by chemicals due to its texture or thickness. Hazardous chemicals may have surface effects, such as causing burns, allergic, or sensitizing reactions, or be toxic.

Continued exposures

Depending on the chemical, toxicity can be acute with short-term effects or chronic with longer term consequences.

While acute reactions are likely to be noted, the effects for continued exposure that manifest in diseases or later health disorders are harder to connect with specific chemical exposures.

Your ability for keeping chemicals off of your skin is dependent on several protection strategies. First, it is important to wear full personal protective equipment including your complete ensemble and respiratory protective equipment such as your SCBA.

For firefighters, this will be your turnout clothing for which many elements include barrier materials that prevent liquid exposure and retard some vapor exposure.

However, as explained above, this clothing is not vaporprotective and some chemicals will indeed reach your skin during the incident if present in sufficient quantities or high enough concentrations. The second step is to avoid contamination with unknown substances.

If you don't know what that puddle is — and it may not be water from hose spray — try to stay away from it. If outside the fire building, then stand away from the smoke.

There are many times that you cannot see or anticipate these exposures, but it is best to avoid contamination when you can. If you can smell smoke or other chemicals, you are being exposed.

The third step you can take is to properly clean and decontaminate your clothing once you have been exposed.

Importance of hygiene

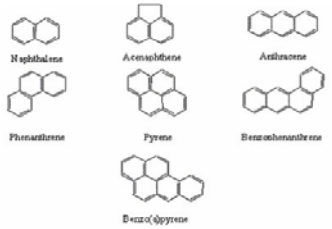
Lastly, and this is a simple and very important step, practice good hygiene.

Take off your contaminated clothing as soon as you can, and properly segregate it from "clean" areas until it can be washed. Then, take a shower as soon after the incident as possible.

A shower will remove any soot and surface residues and will limit your exposure.

There is a lot more to be said on this topic. Some ongoing work in Australia is looking at evaluating firefighter exposures to specific fireground chemicals in different controlled fires.

This research is showing that while the clothing attenuates the effects of chemical exposure, many chemicals still reach the skin in measurable quantities. Of particular concern are heavy chemicals found in most fires, known as polyaromatic hydrocarbons, which do not evaporate.



These constituents of smoke are known carcinogens and are encountered in many fires. In our analyses of contaminated clothing for fire departments upon request, we have sometimes found levels of these contaminants in unclean turnout clothing.

However, one of the problems with chemical exposure to the skin is that there are no clear exposure guidelines for what quantities or concentrations are hazardous. We have performed some research in this area, but skin exposure limits to different hazardous chemicals are still much harder to define as compared to acceptable respiratory exposure levels.

Understanding that firefighters are routinely exposed to chemicals and the steps that need to be taken to protect their skin is an important realization that can limit the effects of exposure.

The proper wearing of appropriate PPE, keeping it clean, avoiding chemical contact where possible, and taking a shower immediately after incidents are all ways to lower the risk from the effects of chemical exposures.

Responding When Something Hits the Fan - Incident Response Training

Thanks to Eric Trummel, Maintenance Manager for Alpenrose Dairy, R10 Update

We all know when an incident occurs, the more an individual or team has been trained the better they will perform. Doing drills with your local fire department is valuable but it can be overwhelming for some employees.

It's an emergency (drill), and they are waiting for someone to tell them what to do. What happens in a real emergency when it's a weekend and there's only one crew member?

At Alpenrose Dairy we train for releases using surprise drills. Only the Safety Committee Chair and the Maintenance Manager know about the drill. We have prewritten the scenario on paper to be distributed to the employees when they arrive at the drill.

We determine the hypothetical release point and let each employee go through the process individually first noting line by line on the scenario sheet what the process is to mitigate the leak. We review individual drill responses as a team. Drill coordinators position themselves at the nearest upwind spot to the hypothetical outside release.

If it's an inside release, coordinators pick an area and hand each team member a copy of the release scenario. Each team members writes down each step needed to secure the leak.

We simulate environmental hazards during the drill.

The response team gets a datasheet with the levels of ammonia present, the type of release they're confronting and possible casualties.

Step One

The team evacuates the scene of all non-essential personnel, and secures it by limiting access points to a single entry point.

Step Two

The team identifies the location of the leak and determines if the levels are safe for entry with level "B" PPE. We review the use of portable ventilation fans to move the ammonia and provide a safe path for isolating the leak.

Step Three

The team isolates the leak. They next use wet blankets or rags to cover the leak and knock it down, while closing valves to stop the release.

Step Four

The team ventilates the area being careful not to contaminate other spaces. They identify all exhaust fan points and uncontaminated fresh air intake ports so they don't move the ammonia back into the building.

We have developed a step by step procedure checklist for larger releases that would require the Fire Department and notification of the NRC, SERC, LEPC, and EPA.

This checklist is the first page in our Emergency Response Plan notebooks.

We have distributed 14 ERP Books to acting members of the response teams and posted them in strategic locations throughout the plant. All plant personnel get annual training on the ammonia release checklist and the emergency response plan.

UPDATE: On June 16th it almost hit the fan and it could happen to you – Are you prepared?

On June 16, 2011, Alpenrose Dairy had a 4,800 pound ammonia release. Emergency training proved its value when staff reacted as trained and contained the release without injuries.

The Release Incident:

- Technician was removing a gauge to calibrate a transducer that is threaded into a service valve located on the High Pressure Receiver.
- Using two wrenches to remove the gauge, he applied pressure and the tee snapped off below the service valve releasing 125 psi aerosol.
- Since the system was under a high pressure, the technician would not have had the time to close the next upstream valve without a higher level of PPE.
- The technician defaulted to our training: Evacuate, Isolate, Notify, and assess the situation. The technician evacuated the space immediately and secured the door.

The Response:

Their training got them to the point where we could develop a specific plan for this release.

Using the pre-written checklist in our Emergency Response (ER) plan we were able to access all the specific contact numbers in the order that they needed to be notified and also keep an ongoing log of all the events associated with the release.

When the release started the ER team was called and they dressed in level B equipment. They began the process of either trying to stop the leak or determining if it was too big to handle alone.

As it turned out the concentrations were too high to make a level B entry. At that point we called 911 and pulled back.

When the Portland Fire Department arrived we talked to the HAZMAT team by radio and determined that we would need them.

We began to get ready for the next steps.

A few years ago we started taking pictures of the refrigeration system to be able to show an outsider exactly what was in the various mechanical rooms.

We were able to show the HAZMAT team exactly which valve to close using the pictures and a map of the space. Once the HAZMAT team had a plan, they suited up. It only took about 15 minutes for the team to secure the leak.

In this case we had the training (along with pictures and a map) to adapt to a fluid situation and assist the HAZMAT team.

What could have been a very long, drawn out event, was secured in a little under 3 hours.

What Is Hazardous?

Thanks to David C. Breeding, OHS Online

A material of relatively low hazard can present substantial risk, while a material with a high hazard might present no measurable risk in certain circumstances.

There are thousands, if not millions, of chemical substances in the world's marketplace, and in our homes, schools, churches, workplaces, public facilities and in the ambient environment. Chemicals are found everywhere.

They purify drinking water, increase crop production, simplify household chores, and are used to manufacture our products. But chemicals can also be hazardous to humans or to the environment when used or released improperly.

Hazards can occur during production, storage, transportation, handling, use, or disposal. You, your workplace, and your community are at risk if a chemical substance is used unsafely or released in harmful amounts into the environment where you live, work, or play. We talk about it all the time, but just what is hazardous?

Hazardous Material vs. Hazardous Waste

A hazardous waste is any discarded material containing substances known to be:

- Toxic
- Mutagenic
- Carcinogenic
- teratogenic

to humans or other life; it may be:

- ignitable,
- corrosive,
- explosive, or
- highly reactive

alone or with other materials.

A hazardous waste is always a hazardous material, although a hazardous material is not always a hazardous waste.

Hazard

A hazard is a situation that poses a level of potential threat or risk, to life, health, property, or environment.

Most hazards are dormant or potential, with only a theoretical risk of harm; however, once a hazard becomes "active," it can create an emergency situation.

More directly, a hazard is a source of potential harm or negative outcome from past, current, or future exposures.

The term hazardous refers to a condition, circumstance, or combination of factors that create a substantial risk or danger of causing injury to persons or damage to property. It is typically used to describe substances and materials that are dangerous, including flammables, explosives, irritants, sensitizers, acids, and caustics, even when such materials may be relatively harmless in diluted concentrations.

What Is Hazardous?

A hazard is anything with the potential to cause harm. Risk is the probability of a negative outcome from exposure to a hazard. A substance is defined as hazardous if it has one or more of the following characteristics: flammable, corrosive, toxic, or reactive.

Also, substances are defined as hazardous if they are specifically listed by regulation. For example, OSHA, EPA, and DOT publish lists of materials deemed hazardous.

In our discipline of occupational health and safety, the six primary hazard categories are:

- Physical hazards
- Chemical hazards
- Biological hazards
- Radiological hazards
- Ergonomic hazards
- Behavioral hazards

A physical hazard arises when use of a chemical is potentially dangerous due, for example, to the possibility of explosion, fire, or violent reaction with water.

Peroxides, sulfuric acid, diethyl ether, and phosphorus pentachloride are examples of chemical materials that present physical hazards.

Often, such materials also present health hazards due to their toxicity.

A chemical/substance is a health hazard if it produces acute or chronic health effects in exposed individuals.

Materials that are health hazards include carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, those which act on the hematopoietic system, and agents that damage the lungs, skin, eyes, or mucous membranes.

Consumer products are includable only if they are used in a manner not intended by the manufacturer.

For example, PAM® cooking spray would not be included if it is used in normal food preparation. However, it would be included if it is used for coating metal smelting crucibles in a foundry operation. Insecticides, rodenticides, and pesticides are always included as hazardous by EPA regulation (FIFRA).

Biohazards are infectious agents or hazardous biological materials that present a risk or potential risk to the health of humans, animals, or the environment.

A biological hazard is one that is posed to humans by a biological organism or by a material produced by such an organism.

The risk can be direct through infection or indirect through damage to the environment.

Biohazardous materials include certain types of recombinant DNA; organisms and viruses infectious to humans, animals, or plants (e.g., parasites, viruses, bacteria, fungi, prions, rickettsia); and biologically active agents (i.e., toxins, allergens, venoms) that may cause disease in other living organisms or cause significant impact to the environment or community.

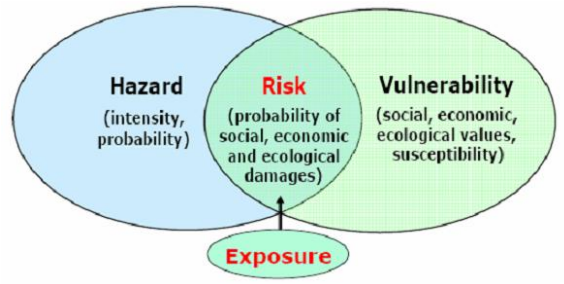
They also can include CDC's "Select Agents," which are essentially biohazardous materials with terrorist/weapons potential. A toxic substance is one that is capable of causing injury or damage to a living organism.

A wide variety of materials are considered as toxic; examples are sulfuric acid, whose action is corrosive; compounds of heavy metals such as tetraethyl lead, which may act as systemic poisons; selenium compounds, such as selenium dioxide; and natural products, such as the aflatoxins.

The term toxicity denotes both the capacity to cause harm to a living organism and to indicate the adverse effects caused by a chemical.

The degree of harm caused to an organism by exposure to a toxic chemical generally increases with exposure level, but it is also dependent upon the type of organism, the length of exposure, the physiological status of the organism (essentially its fitness), and its developmental stage.

For example, some toxic chemicals have a more serious effect upon a developing fetus than upon an adult organism.



Hazard vs. Risk

We've defined hazard as the potential to cause harm; risk, on the other hand, is the likelihood of harm (in defined circumstances, and usually qualified by some statement of the severity of the harm).

The relationship between hazard and risk must be treated very cautiously. If all other factors are equal -- especially the exposures and the people subject to them -- then the risk is proportional to the hazard. However, all other factors are very rarely equal.

Consider the following examples:

1. Potassium dichromate is a highly toxic carcinogenic chemical used in some techniques to analyze exhaled breath for alcohol content. For this purpose it is sealed in a tube and does not become airborne. Therefore, although it is a highly hazardous substance, its use as described does not present significant risk to the user.

2. Flour is not generally considered to be a hazardous substance. A jar of it on a shelf would not have a skull and crossbones depicted on it, together with other hazard warnings, as might have been the case for a bottle of potassium dichromate. However, if a bakery worker were exposed over a period of time to airborne flour dust and/or dust by skin contact, s/he could develop dermatitis (an inflammation of the skin), conjunctivitis (inflammation of the eyes), rhinitis (information of the nose), and even occupational asthma, an inflammatory disease of the lungs that can cause a great deal of distress and may even be life threatening.

Thus, a material of relatively low hazard can present substantial risk, while a material with a high hazard might present no measurable risk in certain circumstances.

Public Health Hazard Categories

The Agency for Toxic Substances and Disease Registry (ATSDR) has established standardized categories for health hazards.

Depending on the specific properties of the contaminant, the exposure situations, and the health status of individuals, a public health hazard may occur.

Using data from public health assessments, sites are classified using one of the following public health hazard categories:

Category 1: Urgent Public Health Hazard: Conditions that pose a serious risk to the public's health as the result of short-term exposures to hazardous substances.

Category 2: Public Health Hazard: Conditions that pose a public health hazard as the result of long-term exposures to hazardous substances.

Category 3: Indeterminate Public Health Hazard: Conditions for which no conclusions about public health hazard can be made because data are lacking.

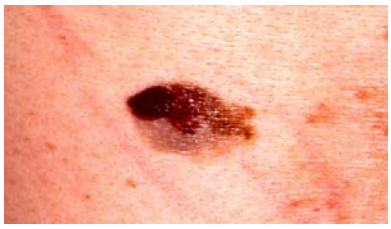
Category 4: No Apparent Public Health Hazard: Conditions where human exposure to contaminated media is occurring or has occurred in the past, but the exposure is below a level of health hazard.

Category 5: No Public Health Hazard: Conditions for which data indicate no current or past exposure or no potential for exposure, and therefore no health hazard.

Categorizing Risk

The characterization of risk has both quantitative and qualitative components to it.

EXAMPLE RISK		Probability				
		Very High	High	Medium	Low	Very Low
Conse-quence	Very High	Very High	Very High	Very High	High	High
	High	Very High	High	High	Medium	Medium
	Medium	High	High	Medium	Medium	Low
	Low	High	Medium	Medium	Low	Very Low
	Very Low	Medium	Low	Low	Very Low	Very Low



It should be clear from the previous discussion that the type of hazard and the adverse outcome associated with it are important qualitative features of "risk."

Thus, a specified probability of developing eczema dermatitis (an inflammation of the skin) would be considered a lesser "risk" than an identical probability of developing melanoma (a particularly severe form of skin cancer).

However, one needs to look more closely to be able to characterize "risk," as distinct from simply "hazard."

The degree of exposure is an important determinant of risk. Thus, a low exposure to something that is highly hazardous may result in a low risk.

Conversely, a high exposure to something of very low hazard may result in a moderate or even high risk.

Every reasonable attempt must be made to quantify an exposure in order to then proceed to attribute a measure of risk to it. The probability of an adverse outcome (i.e., the likelihood of a certain risk) can be expressed in various ways.

Statements about causation often depend on certain assumptions.

When an assumption about causation is wrong, then any associated measure of risk, however accurate numerically, can provide misleading information if it implies that the likelihood of a certain unwanted outcome (e.g., cancer, asthma) is specifically and undoubtedly caused by the stated exposure to a particular hazard.

Therefore, statements about risk must be guided by indications of the uncertainty that may be associated with them.

One may wish to know what steps have contributed to a particular risk being so high and/or what steps can be taken to reduce the risk -- for example, to control the risks from occupational exposures. The cost of risk reduction measures and their benefits will need to be considered.

Perception of Risk

There can be vast differences in how risks are perceived by scientists on the one hand and by the lay public on the other.

Several factors can influence this differential interpretation, including:

- Personal experience of the adverse effect/event
- Social cultural background and beliefs
- The ability to exercise control over a particular risk
- The extent to which information is gained from different sources (e.g., from the media and so on)
- Other considerations (for example, it has been shown that people have a tendency to overestimate very low risk and sometimes to underestimate very high ones)

Risk Acceptance vs. Risk Aversion

Although the scientific community has a very important role to play in measuring risks and in presenting this information in as clear a manner as possible, with appropriate cautions about uncertainty, it remains a responsibility of society to determine what is tolerable and acceptable based on social, political, cultural, and even economic considerations.

Many hazards cannot be abolished in the sense that they are completely gotten rid of.

Therefore, to reduce risk, more often than not it becomes a question of reducing exposure.

In some countries, the goal for reducing occupational risks to health is to achieve a situation where "exposure should be controlled to a level to which nearly all the population could be exposed day after day, without adverse affects of health."

A Deadly Play On Words

Words are wonderfully long lived and adaptive. One meaning becomes obsolete, but the word lives on with a new connotation. Original roots are forgotten in the foliage of new languages, new usages.

As one more at home with words than chemicals, yet in love with both the history of chemistry and chemical safety training, I find certain chemical words and concepts absolutely intriguing and thought provoking.

And if I can provoke thought, I can promote safety! So here goes another meander on one of the oft traveled backroads of my mind. (Meander itself is a wonderful word, with roots in the slow flowing, snaking, wandering, winding Menderes River, from maeander in Latin, maiandros in Greek.)

The concept of the day is blue, but more particularly cyan, aka: Prussian blue.

I often ask the EMTs, paramedics, nurses and doctors in my classes for a word used in their business pertaining to the color blue. The responses are quick and accurate—cyanotic and cyanosis.

Then I ask them for another blue word, one dealing with poison. Again they are on point with cyanide. "Aha," I say tilting my head in a questioning manner, "but we seem to have a medical dilemma."

So I write on the board, side by side, cyanosis and cyanide, underlining cyan on both words. Next I quickly ask two questions, not allowing the first to be answered before I deliver the second.

"What color is cyanotic blood?" "How about cyanide poisoned blood?"

As I do this I point to the two words on the board, cyanosis and cyanide, purposefully tapping the roots, cyan.

Given the education and training of my class participants, the correct answers are given, chocolaty red-brown and bright red.

"What do these answers have to do with the word, the root word blue, cyan?" I ask.

Quickly comes the answer for cyanosis, that the blood in the veins through the skin and lips looks cool, bluish, though the actual blood is chocolaty due to its being deficient in oxygen.

"And for cyanide?" I query.

Unlike in this article, in class I have not introduced the concept of Prussian blue and the word cyan yet, so I do it here.

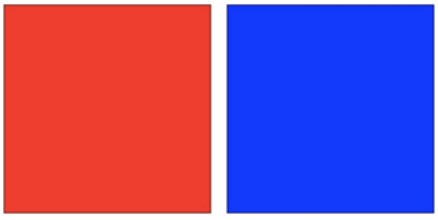
They soon see that while the medical concept of cyanosis has something to do with the color blue, cyanide the word comes from the blue color—Prussian blue—produce by iron cyanide.

Luckily for those of us who need mnemonic devices to remember obscure things, the cyanide ion is a triple bonded unit of C and N, which are the key consonants in cyan.

On the other hand, the blood of cyanide poisoning victims is bright red due to its high load of oxygen.

Cyanide, you see, messes with metabolism and cytochrome oxidase and hemoglobin can't unload its oxygen cargo. Blue and red, red and blue, a cyanide paradox. Hmm.

Because these blue words are in common usage among responders, it is critical that there is no confusion, just because words are often non-technical, nebulous things, especially in this land of the red, white, and blue.



Pipeline Emergencies Second Edition Releases Online Instructor Guide for Fire Trainers; Material Supports New Textbook

The National Association of State Fire Marshals (NASFM), working with a cooperative agreement from the U.S. Department of Transportation's Pipeline and Hazardous Materials Administration (PHMSA), unveiled today a key piece to the comprehensive Pipeline Emergencies training package at their Annual Meeting in New Orleans, LA.

The new Instructor Guide was developed by award-winning fire trainer and hazardous materials specialist Michael Callan.

A detailed training tool, the package is designed to help certified instructors who conduct classes for first responders and pipeline safety operators using NASFM's recently released Pipeline Emergencies second edition textbook written by Michael Hildebrand and Greg Noll.

The Instructor Guide includes slideshow presentations that incorporate textbook highlights and training tips.

The training slides can be completely customized to adapt to any classroom situation.

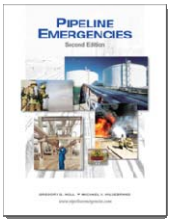
"NASFM is proud to offer not just the textbook but also a trainer's package," said Jerry Rosendahl, President of NASFM and Minnesota's State Fire Marshal during his opening remarks at the Annual Meeting.

"Having the information out there is great but actually giving trainers what they need to get it to America's first responders -- well that's even better."

Jim Narva, NASFM Executive Director and former Wyoming State Fire Marshal added during his report to the nation's top fire officials, "NASFM is really excited to be the group to provide this state-of-the-art curriculum. We know safety, and it was important to NASFM to not only write the best textbook out there but to make sure the information is used and shared. No other public service agency is doing what [NASFM] is doing. This is an exciting time."

NASFM hopes to partner with operators in the pipeline industry to train their local firefighters.

This would allow financially strapped communities who may not be able to send first responders to an actual training class to learn about the latest response techniques via the online curriculum.



About Pipeline Emergencies

Developed by a team of hazardous materials specialists, the Pipeline Emergencies program is the direct result of a cooperative partnership that brought together pipeline owners and operators, federal, state, and local regulators, trade associations, elected officials, and emergency responders to protect American responders and ensure the safety and security of America's pipeline infrastructure.

The updated curriculum covers both liquid and natural gas pipelines, and a range of emergency situations including leaks, spills, and fires. The textbook is available in print, on CD or electronically.

The Instructor Guide is offered as a download from the program's dedicated website (www.pipelineemergencies.com). Smartphone applications for the textbook are available for the iPad, iPhone, and iPod Touch. A Droid version is due soon.

About NASFM

The National Association of State Fire Marshals, based in Washington, DC, includes the most senior fire officials in the United States and District of Columbia. The mission of NASFM is to protect life, property and the environment from fire and related hazards.

NASFM works closely with federal agencies and the American public to offer concrete solutions to fire safety issues.

About PHMSA

The Pipeline and Hazardous Materials Safety Administration is a division of the United States Department of Transportation. The mission of PHMSA is to prevent emergencies and reduce the consequences (to people, the environment, and economic impacts) after a pipeline or hazmat failure has occurred.

HAS YOUR LEPC:

- Established a permanent address for facilities, the SERC, and EPA to mail required forms and information;
- Notified the SERC of any changes to the LEPC structure, especially a change in the chair or address;
- Provided EPCRA training to emergency responders, specifically local fire departments who often can provide information to facilities during fire inspections and police departments who respond to haz-mat incidents?
- Established a 24-hour manned emergency phone number (i.e., sheriff's office, 911, fire department) for facilities to make release notifications -- an answering machine is not sufficient

- **The articles contained herein are provided for general purposes only.**
- **EPA does not accept responsibility for any errors or omissions or results of any actions based upon this information.**
- **Please consult the applicable regulations when determining compliance.**
- **Mention of trade names, products, or services does not convey, and should not be interpreted as conveying official EPA approval, endorsement, or recommendation.**

Disclaimer

Region 6 Emergency Notification Numbers

Arkansas Dept. of Emergency Management	**800-322-4012**
Louisiana State Police	**877-925-6595**
New Mexico State Police	**505-827-9126**
Oklahoma Dept. of Environmental Quality	**800-522-0206**
Texas Environmental Hotline	**800-832-8224**
**********	
National Response Center	**800-424-8802**
EPA Region 6	**866-372-7745**
CHEMTREC	**800-424-9300**