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REGION 6 LEPC Update

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This month we discuss several topics relevant to LEPCs in Region 6.

Steve & Hilary

13th Annual HOTZONE Conference

The goal of 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 13 will be held: October 18-21, 2012 -- Crowne Plaza Hotel – Reliant Park -- Houston, TX

Each year, the Hotzone Committee, as well as many of our State, local, and other partners offer scholarships. All applications must be received by 4pm CDT on August 14, 2011. A full scholarship covers the registration fee and 4 nights at the hotel. A partial scholarship covers the registration fee only. All scholarship recipents should expect to cover their own per diem and travel.

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

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USES of MARPLOT for Emergency Planning / Preparedness

Tom Bergman, Oklahoma Dept. of Environmental Quality

Many of you are familiar with the Computer-Aided Management of Emergency Operations (CAMEO) Suite. The CAMEO programs (CAMEOfm, ALOHA, MARPLOT, and CAMEO Chemicals) were created by NOAA and EPA staff in 1986, and remain a popular tool for emergency planners and responders worldwide.

But did you know that the CAMEOfm and MARPLOT applications are routinely employed for non-Hazmat related uses? While two of the CAMEO Suite programs (ALOHA and CAMEO Chemicals) are useful only for HazMat; MARPLOT is simply a computer mapping application that links to a relational database, CAMEOfm. CAMEOfm and MARPLOT are regularly operated as a Geographic Information System (GIS).

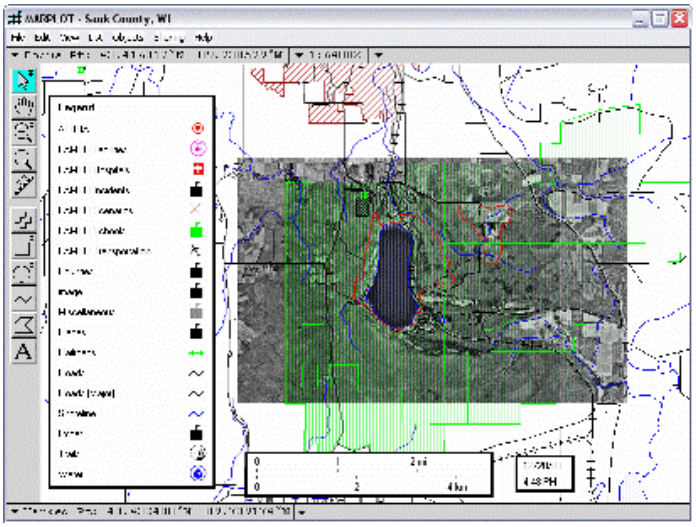
USING MARPLOT FOR SEARCH & RESCUE

One of the attractive properties of MARPLOT-CAMEOfm is that both programs operate independent of any Internet or server connection. This can be critically important for responders in emergency events, as Internet, Cell Phone, and Cloud service may simply not be available.

EF3 Tornado; West Liberty, Kentucky; March 2, 2012

On March 2, 2012, a category EF3 tornado struck the town of West Liberty , Kentucky . One of the first outside assets arriving on-scene was the Urban Search and Rescue (USAR) team from Lexington , Kentucky . Upon arrival on-scene, the USAR team discovered that area Internet and cell phone service had been disabled by the severe weather event. During the initial operational period, Battalion Chief Gregg Bayer (Lexington USAR team commander and Incident Operations Section Chief) obtained a laptop computer from the local emergency manager which had MARPLOT installed with local map data and aerial photos.

They were quickly able to track their resources and segmented areas cleared, establish map grids, and plot suspect areas for void search.



MARPLOT was instrumental in establishing situational awareness, documenting suspected paths of destruction, and obtaining 2010 US Census estimates for affected population and housing units, all without Internet, Cell Phone, or server access.

The MARPLOT population predictions were remarkably accurate which aided in development of the Incident Action Plan.

Missing Kayaker Search; Higgins Beach , Scarborough Marsh, Maine; April 15, 2012

On April 15, 2012 a kayaker was reported missing off of the coast of Scarborough, Maine. At the time of the report, it was believed that the kayaker may have drifted as far as 2 miles off shore. While mobilizing a Unified Command posture with the US Coast Guard, the Logistics section reported that they were unable to establish any satellite or Internet reception.

However, Scarborough Fire Chief B. Michael Thurlow was able to activate his MARPLOT software and within minutes, his responders and the US Coast Guard were able to establish an organized search pattern using National Grid, aerial photos, and user-plotted Lat/Long coordinates to locate the victim.

The responders and the USCG all commented on how effectively the tactical portion of this event had went; the entire incident took no more than 3 hours.

CAMEOfm & MARPLOT AS A GEOGRAPHIC INFORMATION SYSTEM

EF4 Tornado; Oklahoma and Kansas; April 4, 2012

On April 4, 2012, a tornado ravaged northeastern Oklahoma and southwestern Kansas. Several area counties use CAMEOfm and MARPLOT to document and manage information related to recovery efforts. A typical process flow is: the tornado track is drawn onto MARPLOT and "linked" to a CAMEOfm Route record.

Any computer files (such as videos, .jpg, .doc, .pdf, .xls, .bmp, etc) can then be attached to the CAMEOfm tornado data Route record using the Documents tab. Additionally, each individual site experiencing storm damage is plotted onto MARPLOT and linked to an associated CAMEOfm Incidents module data record and the FEMA damage assessment documents plus multiple photographs/videos of the damage are added to the Documents tab. This process allows GIS management of data for the event, and the information is available in CAMEO for future retrieval.

Orlando, Florida Public School District Emergency Planning Activities; 2009-present

The Orlando Florida Public School District Emergency Manager, Joe Mastandrea, uses MARPLOT and CAMEOfm extensively for emergency preparedness activities such as planning and exercise design. Resources such as transportation and maintenance depots are entered to the CAMEOfm database with links to corresponding MARPLOT objects. District GIS data is combined with FCC license data on MARPLOT to facilitate interoperable communications among schools.

Orange County aerial photographs are used to develop high quality maps for exercises involving school administrators, law enforcement and fire rescue personnel.

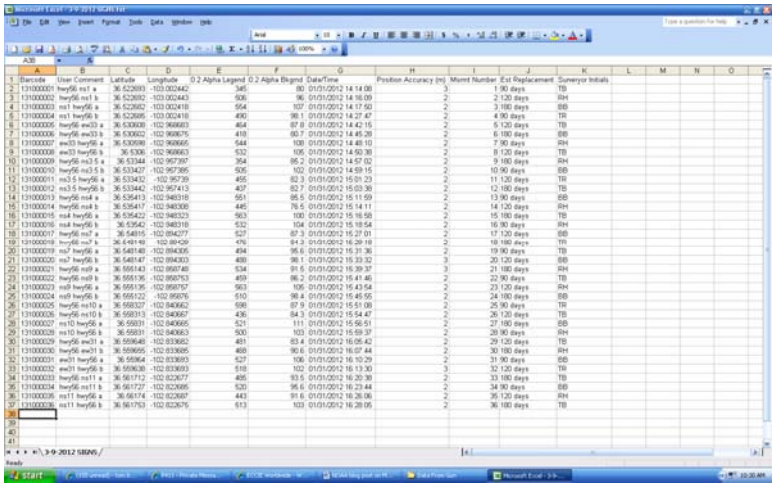
MARPLOT screenshot from a HazMat Spill Event in Exercise near a Orlando Florida school

MARPLOT screenshot for a Severe Weather Orlando Florida displaying affected schools

The district also combines its facility information in MARPLOT with predicted hurricane paths imported from "Hurrevac 2010," the storm tracking and assistance computer program co-developed by FEMA, the US Army Corps of Engineers and NOAA/NWS.

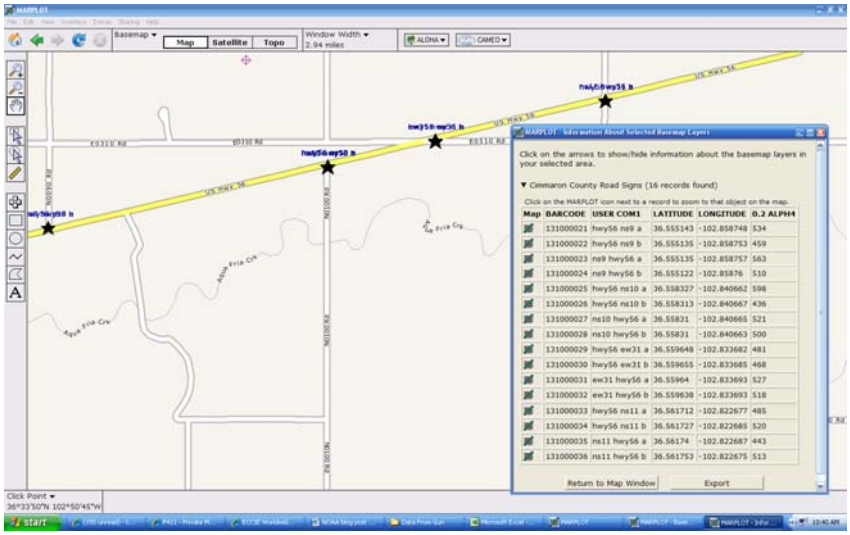
Road Sign Inventory Project; Northwestern Oklahoma, 2012-ongoing

Recently, a number of Oklahoma counties have elected to adopt MARPLOT and CAMEOfm to manage their "road sign inventory" projects. Each road/highway sign in the county is evaluated using a "reflectometer", an instrument used to predict the sign's anticipated lifespan. The reflectometer outputs a tab-delimited text file (.txt) as a spreadsheet containing several data columns along with individual columns for Latitude and Longitude.



Typical reflectometer data exported as .txt file; note columns labeled Latitude and Longitude

MARPLOT can import, retain, and display information for any .txt spreadsheet that has columns for Latitude and Longitude. Thus, information from the reflectometer is imported into MARPLOT, which plots the sign coordinates and allows users to search and display the associated spreadsheet data.



MARPLOT display of Road Signs with information box

Managing Floodplain Information; 2006-ongoing

MARPLOT is also a popular tool for many Floodplain Administrators. A typical process is the Floodplain Administrator (who is also the local Emergency Manager in many jurisdictions) obtains the local area DFIRM (Digital Flood Insurance Rate Map) as a "shape file". After importing the DFIRM shape files to MARPLOT, the local floodplain maps can be displayed over aerial photos. Operating "in the field", a Floodplain Administrator can drive to a site, view aerial photographs of the area, determine exact Lat/Long coordinates, and discover whether the site in inside a designated floodplain area.

The CAMEO staff at NOAA and EPA are constantly revising and improving all the CAMEO programs. MARPLOT version 5 is currently under development, and promises to add many new features. You can find more stories about CAMEO Suite usage at www.cameotraining.org. For more information about obtaining the CAMEO programs, visit http://response.restoration.noaa.gov/cameo and http://www.epa.gov/osweroe1/content/cameo/index.htm

The Risk Management Program -- Emergency Response Program

The EPA Risk Management Program RMP) may require the facility that has a Program 2 or Program 3 process (see box for details), to implement an emergency response program, consisting of an emergency response plan, emergency response equipment procedures, employee training, and procedures to ensure the program is up-to-date. This requirement applies if your employees will respond to some releases involving regulated substances.

RMP Categories (Programs 1, 2 and 3)

The Risk Management Program (40 CFR 68) defines the activities sources must undertake to address the risks posed by regulated substances in covered processes.

To ensure that individual processes are subject to appropriate requirements that match their size and the risks they may pose, EPA has classified them into three categories ("Programs").

Program 1 requirements apply to processes for which a worstcase release, as evaluated in the hazard assessment, would not affect the public. These are sources or processes that have not had an accidental release that caused serious offsite consequences. Remotely located sources and processes using listed flammables are primarily those eligible for this program.

Program 2 requirements apply to less complex operations that do not involve chemical processing (e.g., retailers, propane users, non-chemical manufacturers, and other processes not regulated under OSHA's PSM Standard).

Program 3 requirements apply to higher risk, complex chemical processing operations and to processes already subject to the OSHA PSM. The OSHA PSM Standard (29 CFR 1910.119) reflects the key elements that the petrochemical industry, trade associations, and engineering societies have deemed essential to safe management of hazardous substances for complex, chemical-processing operations.

EPA has adopted OSHA's PSM requirements as the Program 3 prevention program, with only minor changes in terminology. With few exceptions, processes assigned to Program 3 are already subject to the OSHA PSM Standard; the remaining Program 3 processes are in industry sectors that have a significant accident history.

EPA recognizes that, in some cases (particularly for retailers and other small operations with few employees), it may not be appropriate for employees to conduct response operations for releases of regulated substances. For example, it would be inappropriate, and probably unsafe, for an ammonia retailer with only one full-time employee to expect that a tank fire could be handled without the help of the local fire department or other emergency responder.

EPA does not intend to force such facilities to develop emergency response capabilities. At the same time, you are responsible for ensuring effective emergency response to any releases at your facility. If your local public responders are not capable of providing such response, you must take steps to ensure that effective response is available (e.g., by hiring response contractors).

Non-responding Facilities (§ 68.90(b))

EPA has adopted a policy for non-responding facilities similar to that developed by OSHA in its Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard (29 CFR 1910.120), which allows certain facilities to develop an emergency action plan to ensure employee safety, rather than a full-fledged emergency response plan. If your employees will not respond to accidental releases of regulated substances, then you need not comply with the emergency response plan and program requirements.

Instead, you are simply required to coordinate with local response agencies to ensure that they will be prepared to respond to an emergency at your facility. This will help to ensure that your community has a strategy for responding to and mitigating the threat posed by a release of a regulated substance from your facility. To do so, you must ensure that you have set up a way to notify emergency responders when there is need for a response.

Coordination with local responders also entails the following steps:

- If you have a covered process with a regulated toxic, work with the local emergency planning entity to ensure that the facility is included in the community emergency response plan prepared under EPCRA regarding a response to a potential release.
- If you have a covered process with a regulated flammable, work with the local fire department regarding a response to a potential release.

What Is "Response"?

EPA interprets "response" to be consistent with the definition of response specified under OSHA's HAZWOPER Standard. OSHA defines emergency response as "a response effort by employees from outside the immediate release area or by other designated responders ... to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance."

The key factor here is that responders are designated for such tasks by their employer. This definition excludes "responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel" as well as "responses to releases of hazardous substances where there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure)."

However, due to the nature of the regulated substances subject to EPA's rule, only the most minor incidents would be included in this exception. In general, most activities will qualify as a response due to the immediacy of the dispersion of a toxic plume or spread of a fire, the volatilization of a spill, and the threat to people on and off site. As a result, if you will have your employees involved in any substantial way in responding to releases, you will need to develop an emergency response program. Your emergency response procedures need only apply to "response" actions; other activities will be described in your maintenance and operating procedures. Although you do not need to describe these activities in your risk management plan, document your efforts and keep a record of:

- The emergency contact (i.e., name or organization and number) that you will call for a toxic or flammable release.
- The organization that you worked with on response procedures.

Elements of an Emergency Response Program (§ 68.95)

If you will respond to releases of regulated substances with your own employees, your emergency response program must consist of the following elements:

- An emergency response plan (maintained at the facility) that includes:
  - Procedures for informing the public and emergency response agencies about releases
  - Documentation of proper first aid and emergency medical treatment necessary to treat human exposures
  - Procedures and measures for emergency response
  - Procedures for using, inspecting, testing, and maintaining your emergency response equipment
  - Training for all employees in relevant procedures
  - Procedures to review and update, as appropriate, the emergency response plan to reflect changes at the facility and ensure that employees are informed of changes.

Relationship to HAZWOPER

If you choose to establish and maintain onsite emergency response capabilities, then you will be subject to the detailed provisions of the OSHA and EPA HAZWOPER Standard. HAZWOPER covers preparing an emergency response plan, employee training, medical monitoring of employees, recordkeeping, and other issues. Call your state or federal district
OSHA office for more information on complying with the HAZWOPER Standard. State and local governments in states without a delegated OSHA program are subject to HAZWOPER under EPA's 40 CFR part 311.

How Does the Emergency Response Program Apply?

The requirements for the emergency response program are intended to apply across all covered processes at a facility. Although certain elements of the program (e.g., how to use specific items of response equipment) may differ from one process to another, EPA does not intend or expect you to develop a separate emergency response program for each covered process.

With this in mind, you should realize that your emergency response program will probably apply to your entire facility, although technically it need only apply to covered processes.

For example, a facility may have two storage tanks, one containing slightly more than a threshold quantity of a regulated substance and one with slightly less. The facility is likely to adopt the same response approach (e.g., procedures, equipment, and training) for releases whether or not the process is "covered."

Similarly, a facility may have two adjacent flammable storage tanks, one containing a regulated substance above the threshold and the other containing another, and unlisted flammable.

The facility is likely to adopt the same approach for releases whether or not the process is "covered."

Developing an Emergency Response Program

The development of an emergency response program should be approached systematically. The following steps outline a systematic approach that can serve as the framework for the program development process in each of these cases. Following these initial steps will allow you to conduct the rest of the process more efficiently.

1) Form an emergency response program team

The team should consist of employees with varying degrees of emergency response responsibilities, as well as personnel with expertise from each functional area of your facility. You should consider including persons from the following departments or areas:

- Maintenance

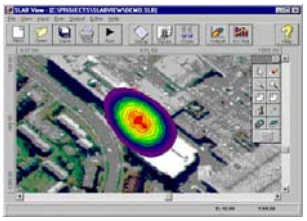
- Operations or line personnel
- Upper and line management
- Legal
- Fire and hazmat response
- Environmental, health, and safety affairs
- Training
- Security
- EPCRA section 302 emergency coordinator (if one exists)
- Public relations
- Personnel

Of course, the membership of the team will need to be more or less extensive depending on the scope of the response program. A three-member team may be appropriate for a small facility with a couple of process operators crosstrained as fire responders, while a facility with its own hazmat team and environmental affairs department may need a dozen representatives.

2) Collect relevant facility documents

Members of the development team should collect and review all of the following:

- Site plans
- Existing emergency response plans and procedures
- Submissions to the LEPC under EPCRA sections 302 and 303
- Hazard evaluation and release modeling information
- Hazard communication and emergency response training
- Emergency drill and exercise programs
- After-action reports and response critiques
- Mutual aid agreements



3) Identify existing programs to coordinate efforts

- The team should identify any related programs from the following sources:
  - Corporate- and industrysponsored safety, training, and planning efforts
  - Federal, state, and local government safety, training, and planning efforts

4) Determine the status of each required program element

Using the information collected, you should assess whether each required program element is:

- In place and sufficient to meet the requirements of RMP (part 68)
- In place, but not sufficient to meet the requirements of RMP (part 68), or
- Not in place.

This examination will shape the nature of your efforts to complete the response program required under the RMP. For example, if you are already in compliance with OSHA's HAZWOPER Standard, you have probably satisfied most, if not all, of the requirements for an emergency response program.

LARGE VOLUME ETHANOL SPILLS – ENVIRONMENTAL IMPACTS AND RESPONSE OPTIONS

Massachusetts Department of Environmental Protection

In July, 2011, the Massachusetts Department of Environmental Protection (DEP) developed a guide on responding to large volume ethanol spills. Here is the Executive Summary of this Guidance. We will include the entire Guidance with this Update.

Executive Summary

In the last ten years, the production of ethanol has increased dramatically due to the demand for ethanol-blend fuels. Current production (2010) in the United States is 13 billion gallons. Denatured ethanol (approximately 95% ethanol, 5% gasoline) is largely shipped from production facilities by rail and is now the largest volume hazardous material shipped by rail.

Large volumes of ethanol are commonly shipped by unit trains, up to 3.2 million gallons, and the larger barges can transport up to 2.5 million gallons. In Massachusetts, two to three ethanol unit trains currently travel through the state per week, as well as an ethanol barge per week.

The number of trains and barges transporting denatured ethanol (95% - 98% ethanol) through the state are anticipated to increase in the future, especially if the use of higher ethanol blends becomes more prevalent. The high volume of ethanol transported and the differences in the chemical properties, and the fate and transport of ethanol as compared to standard gasoline, led to the need for additional consideration of spill response actions. In particular, this document considers the assessment and response actions for rail and barge spills of denatured ethanol.

Ethanol is a flammable colorless liquid; a polar solvent that is completely miscible in water. It is heavier than air, and has a wider flammable range than gasoline, with a Lower Explosive Limit (LEL) to an Upper Explosive Limit (UEL) range of 3.3% to 19%. The flash point for pure ethanol is 55°F, and for denatured ethanol it is much lower (-5°F). Ethanol is still considered a flammable liquid in solutions as dilute as 20%, with a flash point of 97°F. At colder temperatures (below about 51°F), the vapor pressure of ethanol is outside the flammable range.

Denatured ethanol is shipped with a flammable liquids placard and North American 1987 designation.

A number of large volume ethanol incidents have occurred. Some of these have resulted in significant fires, most of which have been allowed to burn. Water has been used in some incidents, primarily to protect nearby structures or tanks. Alcohol-resistant foam has also been used, primarily to extinguish fires within tanker cars. Sampling and analysis of environmental media that has occurred in connection with spill response activities have shown impacts related to these spills, although they are generally of relatively short duration. The most significant documented impact was a large fish kill that occurred in Kentucky as a result of a bourbon spill.

This effect was related to oxygen deficiency resulting from ethanol biodegradation, rather than direct toxicity. Another fish kill was observed subsequent to a spill in Illinois, but it has not been definitively attributed to the spill.

In general, ethanol in the environment degrades rapidly. Biodegradation is rapid in soil, groundwater and surface water, with predicted half lives ranging from 0.1 to 10 days. Ethanol will completely dissolve in water, and once in solution, volatilization and adsorption are not likely to be significant transport pathways in soil/groundwater or surface water.

Once oxygen is depleted from aerobic degradation, anaerobic biodegradation of ethanol in groundwater results in the production of methane, which can result in an explosion hazard upon accumulating in a confined space. For an

ethanol spill in typical aerobic environments, the depletion of oxygen and production of methane may take several months.

Several case studies of spills have shown that ethanol has been completely degraded in groundwater within two to three years. The presence of ethanol can reduce the rate of biodegradation of gasoline constituents (benzene, toluene, ethylbenzene, and xylenes – BTEX) in groundwater, and thus increase the persistence and dimensions of BTEX plumes.

However, there is contradictory evidence that suggests that ethanol may actually enhance the rate of benzene biodegradation.

Biodegradation of ethanol in surface water can result in depletion of dissolved oxygen, as evidenced by the Kentucky fish kill. One of the greatest hazards of ethanol is its flammability. Ethanol can conduct electricity, so electrocution and possible ignition hazards are present during transloading operations.

Human exposure to ethanol during spill situations could occur by inhalation, contact with the skin, or ingestion if ethanol reaches water supplies (surface water intakes or groundwater). The odor threshold for ethanol is 100 ppm in air. No significant acute effects have been observed upon exposure to ethanol in air at 1000 ppm, and this is the OSHA PEL.

Effects have been observed from concentrations in air ranging from 3000 ppm to 10,000 ppm, including headaches, and eye and respiratory system irritation. Acute ingestion doses of 0.1 to 0.5 g/kg body weight are considered the threshold for central nervous system effects.

Chronic effects associated with ethanol exposure are well documented, primarily associated with alcohol abuse. A dose of 0.2 g/kg body weight/day is considered the threshold for neurological effects in fetuses, and liver effects are observed at doses of 2 g/kg/day. In addition, the consumption of alcoholic beverages and ethanol have been identified as carcinogenic in humans by the World Health Organization. However, chronic exposures to ethanol are unlikely to occur as a result of a spill, due to the rapid biodegradation of ethanol and the monitoring associated with a spill incident.

Water quality benchmarks (for the protection of aquatic life) have been developed: 63 mg/L for the protection against chronic effects, and 564 mg/L for acute effects. However, modeling has suggested that oxygen depletion can occur at lower concentrations.

The occupational exposure limit for ethanol is 1000 ppm in air (general industry), and the concentration deemed to be Immediately Dangerous to Life or Health (IDLH) is 3300 ppm, which is 10% of the LEL. Self-contained breathing apparatus (SCBA) is necessary for spill response. For large spills with fire, evacuation of about ½ mile in all directions should be considered. Methods for assessment and analysis of ethanol are somewhat limited due to its high solubility.

A simple open flame test can be used to determine the presence of ethanol at relatively high concentrations. A hydrometer can be used to determine approximate concentrations of ethanol in water. The best option for screening is a portable Fourier Transform Infared (FT-IR) spectrometer that has relatively low detection limits and can specify ethanol. A relatively recent analytical method (SW-846 8261) has been developed that provides low detection limits for ethanol.

Consideration of past ethanol incidents provides some insight into fate and transport in a spill situation, as well as response activities that have been effective. Consideration of these incidents, as well as conducted and possible response actions leads to the following conclusions:

- In some cases, ethanol rail incidents result in fire. In many cases, these fires have been significant, involving multiple rail cars and large volumes of ethanol;
  First responders generally have been local fire fighters that have focused on necessary evacuations, containing the fire, and protecting nearby structures and/or tanks;
- In most cases, if not all, ethanol fires have been allowed to burn, although most have not occurred in highly populated areas. Cooling water was used to protect structures, tanks, and uninvolved rail cars;
- In some cases, where large amounts of water usage were necessary, run-off to nearby streams occurred. In one case, the stream was subsequently dammed, and 500,000 gallons of impacted water were removed for disposal;

- Alcohol resistant foam (AR-AFFF) has had limited use in these large spill and fire situations, probably due to the limited volume generally available to local fire-fighters and concerns with migration and/or recovery of the foam/ethanol. Most use has been to extinguish specific breached and burning cars that were blocking passage, or to extinguish fires inside tankers prior to removal of the contents and movement of the tanker. The use of AR-AFFF has been effective in these circumstances;
- The fires have consumed large volumes of ethanol, thus limiting impacts to environmental media;
- The most significant impacts related to ethanol spills have been to surface water. In some cases, surface water impacts have resulted in fish kills several days after the spill as a result of oxygen depletion. These impacts have occurred some distance from the site of the original spill;
- Due to concerns of surface water impacts, response activities have more recently involved efforts to prevent discharge to surface water through damming. Aeration of small creeks and large rivers has also been used to improve dissolved oxygen content; and
- Migration of spilled ethanol from the surface through soil to groundwater is also of concern, due to possible groundwater contamination and discharge to surface water, as well as methane generation. Where possible, spilled material has been recovered by pumping. In some cases, spilled material was not identified, and migration to groundwater and surface water occurred. In cases where groundwater impacts have occurred, ethanol has degraded relatively rapidly, although gasoline constituents have been more persistent.

As a result of the above observations, the following recommendations can be made:

- Contained burning is an effective response to an ethanol spill incident. It has been used in numerous spill incidents, albeit they have not generally occurred in highly populated areas;
- Cooling water may be needed to protect tanks, structures, or uninvolved rail cars. Runoff from water use should be contained and/or recovered to the extent possible to prevent infiltration to groundwater and impacts to surface water;
- The local fire department stocks of alcohol resistant foam could be increased, as its use is effective. When used where the ethanol/foam can be recovered, environmental impacts will be limited. Foam not recovered and reaching surface water can increase the biochemical oxygen demand loading to streams. In addition, foam use on unpaved surfaces does not limit the migration of ethanol to groundwater;
- Ethanol pools or impacts to soils should be identified as quickly as possible to prevent infiltration to groundwater and runoff to surface water. The high solubility of ethanol can result in rapid transport in these media. Recovery and excavation have largely been used to address such situations. Controlled burn has not been used, but could be considered in some situations;
- Ethanol impacts to surface water are a concern. Ethanol spills reaching ditches or small creeks can be addressed by damming, thus allowing time for biodegradation and preventing releases to larger water bodies. Aeration of these water bodies can be used to improve their dissolved oxygen content and enhance biodegradation, but these actions may not reduce ethanol content sufficiently prior to discharge to a large water body;
- Once ethanol is discharged to a larger river, response options are limited. Monitoring of both dissolved oxygen and ethanol should be conducted in order to determine whether concentrations are approaching anoxic or toxic levels. Barge aerators can be used to improve dissolved oxygen levels; and
- Ethanol incidents in the marine environment have been rare, with none of a significant volume occurring in harbors or near-shore areas. Response options in such cases are similarly limited to the use of aeration to improve dissolved oxygen levels, although this would only be effective in smaller areas, such as inlets.

Threshold Planning Quantities For Extremely Hazardous Substances -- Revised

In the March 22 Federal Register final rule, EPA revises the manner for applying the threshold planning quantity (TPQ) for the 157 non-reactive extremely hazardous substance (EHS) chemicals that are handled as solids in solution. These 157 chemicals appear with two TPQs, (the higher TPQ is 10,000 pounds) in Appendix A and B of 40 CFR part 355. The 12 solid EHS chemicals that are reactive solids are noted by foot-note —all in Appendix A and B of 40 CFR part 355, and are not affected by this final rule. Definitions of reactive and non-reactive solids, have also been added to the regulations in 40 CFR 355.61 for greater clarity. Solid EHSs (except reactive solids) have a TPQ of 10,000 pounds or a specified lower TPQ, for particular forms.

For purposes of complying with the emergency planning notification requirements of Section 302 of EPCRA, facilities should multiply the amount of EHS chemical handled as a non-reactive solid in solution on-site by 0.2 before determining if this amount equals or exceeds the established lower TPQ. If the amount of the non-reactive EHS solids in solution on-site multiplied by 0.2 does not equal or exceed the lower TPQ for that solid EHS, then the facility is not subject to the EPCRA Section 302 emergency planning notification requirements for that substance.

This amount includes only the weight of the chemical and not the solvent or other chemicals in solution. The amount of non-reactive EHS solids in solution may be determined by multiplying the weight percent of the EHS solids in solution in a particular container by the weight of the total solution.

Solutions include aqueous or organic solutions, slurries, viscous solutions, suspensions, emulsions, and pastes.

Additionally, EPA has also revised the regulations for 40 CFR 355.16(c) to be applicable only to molten non-reactive solids. That is, the factor of 0.3 to be multiplied by the amount of a molten solid on-site before comparing to the lower TPQ should only be used for non-reactive solids in molten form, not reactive solids in molten form.

Reactive solids are more likely to be dispersed into the air due to the energy or heat created from their reactivity with water or air and their TPQs were developed taking these factors into account. Additionally, the methodology of applying TPQs for non-reactive EHS solids in solution or non-reactive molten solids does not affect the reporting requirements for Sections 311 and 312 of EPCRA (40 CFR part 370). Regulations under 40 CFR 370.10 state that an EHS is present at a facility if the amount of EHS present at any one time‖ is equal or greater than 500 pounds or the TPQ, whichever is lower.

The reducing factor of 0.2 for non-reactive EHS solids in solution or (0.3 for non-reactive EHS molten solids) is not to be used for compliance with hazardous chemical reporting.

Therefore, EPA has amended the text of 40 CFR 355.16 (b) and (c) to clarify that the reduction in quantity for the amount of non-reactive EHS solids in solution and for the amount of non-reactive EHS solid in molten form present at a facility does not apply - for reporting requirements under 40 CFR 370.10, which covers MSDS and hazardous chemical inventory reporting. That is, facilities must not use the reduction in quantity on-site to determine the —amount present at one time‖ for reporting under 40 CFR 370.10.

The reason why the reducing factors are to be used for emergency planning notification under 40 CFR part 355 and not under hazardous chemical reporting under 40 CFR part 370 are explained below. Emergency planning notification under Section 302 helps LEPCs identify those facilities whose accidental releases pose risks to the surrounding community so they can develop emergency plans that identify the location and number of affected populations, evacuation or shelter-in-place procedures, etc.

On the other hand, sections 311 and 312 of EPCRA require submission of MSDSs and an on-site inventory of hazardous chemicals to help emergency responders assess how to respond to an emergency release or fire.

In particular, responders need the amounts, manner of storage and locations of the chemical on-site, the chemical and physical properties, hazard ratings, toxicity information and incompatibilities of the chemical, as well as measures needed to contain the spill

or fire at the facility in order to know how to respond to an emergency. In addition, they need to know what type of protective equipment is needed to protect them from exposure, not only airborne, but also dermal exposure.

Emergency release notification requirements under EPCRA section 304 also are not affected by this final action. Section 304 requires facilities to notify the community emergency coordinator for the LEPC of any area likely to be affected by the release and the SERC of any area likely to be affected by the release (defined in 40 CFR 355.61) at or above the reportable quantity (RQ) of any EHS or CERCLA hazardous substance.

If the chemical released is a CERCLA hazardous substance, the release must also be reported to the National Response Center (NRC). The RQ is not the same as the TPQ.

TPQs are based on acute mammalian toxicity and potential for air-borne dispersion. RQs, on the other hand, are developed using several criteria, including aquatic toxicity, mammalian toxicity, ignitability, reactivity, chronic toxicity, potential carcinogenicity, biodegradation, hydrolysis, and photolysis (50 FR 13468, April 4, 1985).

For more information, see the entire federal register notice: http://www.gpo.gov/fdsys/pkg/FR-2012-03-22/.

Emergency Response to CCA-Treated Utility Pole Fires

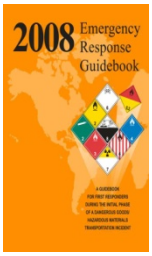
Provided by Entergy Corporation

Certain wooden utility poles, those treated with Chromated Copper Arsenate (CCA) preservative, may release toxic concentrations of arsenic and/or chromium when burned. Potentially toxic arsenic compounds may be associated with the smoke and fumes originating from an actively burning CCA treated pole. AVOID INHALATION.

The residual ash and charred surfaces remaining after the burning of a CCA treated pole may also contain potentially toxic arsenic compounds. AVOID INGESTION, INHALATION OR SKIN CONTACT. CCA treated poles can be recognized by a light greenish staining which fades to silver with age. (By contrast: Creosote treated poles are generally black, often with a "tarry" appearance). When in doubt, as a precaution, always assume that a burning or burned wooden utility pole is CCA treated.

A safe perimeter should be established in order to minimize potential for exposure of general public in downwind locations or to residual ash for poles that are not actively burning. Only essential personnel should be allowed inside the perimeter until the site has been cleaned up.

While working near an actively burning wooden utility pole which is potentially CCA treated, Emergency Responders should wear self-contained breathing apparatus. A "Level B" splash-proof suit and gloves are recommended. Once the pole fire is extinguished, a half-face air-purifying respirator with a HEPA filter must be utilized, at a minimum. Appropriate outer wear and gloves shall be used to prevent contact with the ash or charred surfaces. The use of water to extinguish a potential CCA treated wood pole should be avoided.



Arsenic pentoxide is highly soluble in water; the use of water may promote the horizontal and vertical migration of arsenic into the environment. Fire suppression personnel should consider a Class A (combustibles) extinguisher or foam. If water is used, runoff to storm drains or open water should be avoided. Line crews arriving at the site of a burned CCA pole should establish a perimeter with safety tape. Line crews shall avoid contact with ash and charred wood while conducting service operations. Appropriate spill response contractor personnel shall be onsite during service operations.

Per the 2008 edition of the DOT Emergency Response Guidebook (ERG), any spill associated with the fire should be isolated in all directions for at least 150 feet for liquids and 75 feet for solids.

Local Government Reimbursement Success Stories

EPA Headquarters has evaluated several applications submitted under the Local Governments Reimbursement Program.

Based on the evaluation:

- Benton, AR, is eligible for an award of $ 17,184.50 for costs incurred responding to drug labs in March – September, 2011.
- Fayetteville, AR, is eligible for an award of $ 3,567.50 for costs incurred responding to drug labs in May – July, 2011.
- Mountain Home, AR, is eligible for an award of $ 2,399.73 for costs incurred responding to a drug lab in July, 2011.
- Poinsett County, AR, is eligible for an award of $ 2,296.00 for costs incurred responding to a drug lab in July, 2011.
- Harrison, AR, is eligible for an award of $ 1,548.50 for costs incurred responding to a drug lab in June, 2011.
- Madison County, AR, is eligible for an award of $ 1,592.00 for costs incurred responding to a drug lab in June, 2011.
- Beauregard Parish, LA, is eligible for an award of $ 1,147.00 for costs incurred responding to a drug lab in June, 2011.

OSHA Modifies the Hazard Communication Standard

OSHA®

In a final rule, published on March 26, 2012, OSHA is modifying its Hazard Communication Standard (HCS) to conform to the United Nations' Globally Harmonized System of Classification and Labelling of Chemicals (GHS). OSHA has determined that the modifications will significantly reduce costs and burdens while also improving the quality and consistency of information provided to employers and employees regarding chemical hazards and associated protective measures.

Consistent with the requirements of Executive Order 13563, which calls for assessment and, where appropriate, improvement of existing rules, the Agency has concluded this improved information will enhance the effectiveness of the HCS in ensuring that employees are apprised of the hazards to which they may be exposed, and in reducing the incidence of chemical-related occupational illnesses and injuries.

The modifications to the standard include revised criteria for classification of chemical hazards; revised labeling provisions that include requirements for use of standardized signal words, pictograms, hazard statements, and precautionary statements; a specified format for safety data sheets; and related revisions to definitions of terms used in the standard, and requirements for employee training on labels and safety data sheets. OSHA is also modifying provisions of other standards, including standards for flammable and combustible liquids, process safety management, and most substance-specific health standards, to ensure consistency with the modified HCS requirements. The consequences of these modifications will be to improve safety, to facilitate global harmonization of standards, and to produce hundreds of millions of dollars in annual savings.

Dust from Industrial-Scale Processing of Nanomaterials Carries High Explosion Risk

American Chemical Society

With expanded industrial-scale production of nanomaterials fast approaching, scientists are reporting indications that dust generated during processing of nanomaterials may explode more easily than dust from wheat flour, cornstarch, and most other common dust explosion hazards, according to a February 15 release from the American Chemical Society (ACS).

Their article in ACS' journal Industrial & Engineering Chemistry Research indicates that nanomaterial dust could explode due to a spark with only 1/30th the energy needed to ignite sugar dust — the cause of the 2008 Portwentworth, Georgia, explosion that killed 13 people, injured 42 people, and destroyed a factory.

After reviewing results of studies that exist on the topic, the researchers concluded that the energy needed to ignite nanomaterials made of metals, such as aluminum, is less than 1 mJ, which is less than 1/30th the energy required to ignite sugar dust or less than 1/60th the energy required to set wheat dust aflame. Flocking is often made with a process that generates static electricity, which could set off an explosion of flocculent dust, they point out.

And the addition of a flammable gas or vapor to a dust as a hybrid mixture increases the chance that the dust will explode. The researchers warn that precautions should be taken to prevent these materials from exposure to sparks, collisions, or friction, which could fuel an explosion.

Anhydrous Ammonia: Theft and Chemical Safety

Thanks to EPA Region 8 for much of this information

WAVERLY, OH -- The Pike County Sheriff's Office this week continued to clamp down on local makers of methamphetamine with the arrests of two men linked to the drug's production.

The first man was arrested Monday after deputies reportedly found a mobile meth lab in the car he was driving. Then, on Tuesday, in what appears to be an unrelated incident, another man was arrested for allegedly stealing anhydrous ammonia, a farm fertilizer that is often used in meth production.

The alleged mobile meth lab bust occurred during a traffic stop shortly before 8 p.m. Monday on Rapp Montgomery Road.

A sheriff's deputy smelled an odor of chemicals used in meth production while driving behind a vehicle which he had seen parked in the roadway. He stopped the vehicle and discovered an active meth lab at the driver's feet inside the vehicle, Pike County Sheriff Richard Henderson said in a press release.

Tuesday's arrest of a Jackson man accused of stealing anhydrous ammonia was the result of surveillance by sheriff's investigators at an undisclosed location where a farmer was storing tanks of the chemical, Henderson said. The suspect was reportedly seen entering the property and transferring the anhydrous ammonia from the farmer's tank into a small propane tank. Investigators identified themselves and the suspect fled into an open field where he was apprehended, Henderson said.

As the time approaches for preparing fields, it is also unfortunately, the time for anhydrous ammonia thefts to increase as thieves obtain this methamphetamine manufacturing ingredient. Region8 states being agriculture focused makes this topic particularly important to our industry, farmers, and First Responders. Agricultural purpose anhydrous ammonia (NH3) can be as inexpensive as $200 a ton, but, when obtained illegally, it can sell for as much as $300 per gallon on the black market. Drug makers use NH3 for illegal manufacturing of methamphetamine. A large quantity of meth can be manufactured with less than 10 gallons of anhydrous ammonia.

Thefts are often aborted when thieves are injured or overcome by the toxic gas. During these aborted attempts, "tools" are often left behind, such as duct tape, inner tubes, buckets, coolers, and/or propane bottles from barbeque grills. Several states have passed legislation making it a felony to tamper with or steal anhydrous ammonia, or hold the substance in a non-approved container. Victims of anhydrous ammonia theft may not realize a theft has occurred because the amount of material stolen is relatively small compared to the overall volume of a tank. Evidence of tampering with tank valves or the presence of items left behind by thieves are ways that you may know a theft has occurred. These include:

- Partially opened tank valves and/or leaking tanks.
- Buckets, coolers, duct tape, garden hoses and bicycle inner tubes.
- Empty containers around tanks, especially small barbeque tanks, the valves of which may be compromised and dangerous to handle.
- Ring marks from propane cylinders put on the ground.
- The presence of unfamiliar or suspicious-looking individuals during daylight hours (thieves often scout the property beforehand).

Consider the following procedures to protect your NH3-supply from theft:

- Obtain locking devices for nurse tank valves.
- If you hold multiple tanks for an extended period of time, visit with rural law enforcement about the location and amounts of anhydrous ammonia.
- Ensure that tanks are placed in lighted, secure areas. If possible, place tanks where they can be seen from the residence and where the flow valves face either the drive lane or residence.
- Bleed and remove hoses to remove excess liquid. This small amount can be enough to produce meth.
- Check tanks frequently since unattended tanks are often targeted. Block road lanes or entrances near the tank with a gate or barricade to complicate theft of the entire tank.
- Post "No Trespassing" signs and label tanks with caution labels to warn of the highly hazardous nature of anhydrous ammonia and to reduce your liability should an injury occur during theft.
- Place brightly colored plastic wire ties or seals between the valve wheel and the roll cage to facilitate quick visual checks for tampering. A broken tie or seal likely indicates tampering.
- Do not confront suspicious individuals near your tank. Call the police, because users of meth may become violent with little provocation.

Taking a few simple steps and being a little more vigilant about where and when anhydrous tanks are stored may prevent your NH3 supply from being used by meth labs in a drug wave that is impacting your community.

Pay attention to signs of tampering with tanks to prevent a serious accident with your family, employees or neighbors, or a first responder's attempt to approach a tank.

N of 1

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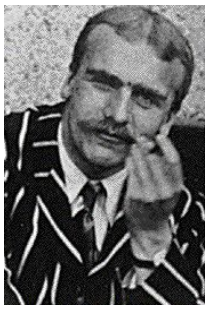
People often ask me something like: What is the most interesting thing in science. I presume they mean is what really interesting thing did I learn since I started studying science in earnest over twenty years ago. One tries not to be too pushy when asked such questions.



The geneticist, J.B.S. Haldane's, response when he was asked what could be inferred about the mind of the Creator from the works of His Creation: "An inordinate fondness for beetles." As it says in Wiki: "This is in reference to there being over 400,000 known species of beetles in the world, and that this represents 40% of all known insect species (at the time of the statement, it was over half of all known insect species)." Another rather sarcastic response would be the one often given by paleontologists, who like to answer such questions with: As a first-order approximation, all species are extinct.

I would like to be well known for such pithy sayings, however, I am neither so well versed in science nor so quick with a riposte (a word I learned that means "a retaliatory verbal sally") as to be oft-quoted or Wiki-fied. So I just tell the truth, or a first-order approximation of the truth, anyway. I like to respond to such questions with: "N of 1." For several reasons.

First, N of 1 is an interesting concept and a great training tool. Second, asking a person for his opinion seems to me to be a prime example of N of 1. By the way (BTW in text talk), commenting that someone has an "N of 1" is a scientist's way of saying that your statistical base is meaningless, for making a decision with just one item of data is ludicrous and purely unscientific.

N of 1 means that a statistical study is based on a pool or population of one, which of course means that it's someone's guess or opinion or someone's gramma said it.

However, as an erstwhile emergency manager who often tries to be the world's safety officer, I have found that people often do not plan for or prepare for emergencies or do not do personal safety procedures for highly personal reasons, with really low Ns.

Stated another way, if you want to do something, no reason is too small to justify your action, or if you don't want to do something, no excuse is too small to use.

For example, if you want to smoke, these are good ones: "My grandmother smoked and she lived to be ninety one!" or "My grandfather never smoked a day in his life and he died of lung cancer!" Both are N of 1.

Together, they are N of 2, which is no better than N of 1 BTW. This week I heard "I don't wear seat belts because I don't want the government telling me what to do." and "I don't wear a seat belt because my husband was wearing one when he died in a car crash." Statistics are about large numbers. Statistics are about the odds. Health and safety statistics are developed to keep us in the game. Health and safety are, like Aristotle's virtue, in the middle.

A "good weight" for anyone is somewhere in between the extremes of obesity and bulimia, for the extremes are un-healthy, un-safe, un-virtuous. Not smoking is safer, healthier, than smoking, yet, I've seen a fire fighter take off the SCBA and light up a cigarette. Why do I think N of 1 is right up there among the most important concepts in science?

Because, if we can get folks to admit how irrational their behavior is—statistically, numerically, realistically, objectively—we have a chance at changing their behavior. If not, it is we who become their caregivers, the rehabilitators, the fixers, the bill payers. Why don't we build in flood plains? Why don't we want our kids to become addicts? Why is overeating not appropriate?

Because of the odds of purposefully creating the problems which grow from such behaviors. To paraphrase Damon Runyan, the race doesn't always go to the swift nor the battle always to the strong, fit people aren't always healthier, and educated people don't always

have better jobs, but that's the way to bet! Remember, you are just an N of 1. Why should you maintain a healthy lifestyle? Why should your organization or jurisdiction prepare and plan? Why should responders train and exercise? Because, given the odds, given an N of thousands, that's the way to bet!

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

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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**
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National Response Center	**800-424-8802**
EPA Region 6	**866-372-7745**
CHEMTREC	**800-424-9300**