EBC Climate Change Program
Preventing Toxic Exposures During Climate Events
Severe Weather & Emergency Preparedness for Facilities
Welcome

Daniel K. Moon

Executive Director & President
Environmental Business Council

Environmental Business Council of New England
Energy Environment Economy
Thank you to our Host
Program Purpose & What You Will Learn

Will Campbell

Program Co-Chair

Senior Project Manager

Tetra Tech

Environmental Business Council of New England
Energy Environment Economy
Preventative Emergency Preparedness in Times of Climate Change

Rick Reibstein, JD.

Instructor

Department of Earth & Environment

Boston University
Preventing Accidental Releases

CAI / Arnel Chemical Plant Explosion, 2006 Chemical Safety Board Report

Rick Reibstein
Lecturer, Environmental Law and Policy, Boston University and Harvard Continuing Education
TURA Administrative Council

Brings together agencies with responsibility for chemicals, to focus on PREVENTION. TURA planning: TURI educates and DEP ensures. OTA helps everyone whether required to do TURA planning or not.

After the Danvers event the Chemical Safety Board asked OTA to present its PREVENTIVE EMERGENCY PLANNING work. This was about reducing the risk and not just being ready to respond to accidents, including reducing use of the chemicals that cause risks.

After reporting on this to the Administrative Council, the Fire Marshal representative (Timothee Rodrique) asked OTA to help with outreach on the new Hazardous Materials Processing regulations (527 CMR 33, now chapter 60 of 527 CMR 1.00).
OTA’s Preventive Emergency Planning Approach began with the “One-plan”.

In 1996 the National Response Team gave permission to facilities to do just ONE response plan instead of the possibly six some had to do.

A presumably polluted area pictured on the website of the National Response Team, which oversees the National Response Center.

EPA asked OTA to tell people about it. We agreed if we could also promote using Emergency Planning to PREVENT accidents and not just get ready to respond to them.
Maybe you know this

• Large quantity toxics users in MA have to do toxics use reduction plans. Must track chemicals carefully and report on use (only NJ, Eugene OR and Ontario also require chemical input reporting).

• Chemical use reporting reduces losses in process and leads to greater attention to risks – but many ignore “black swans”.

• Planning consists of identifying options for using less, or safer substitutes. The law does not have bans on chemical use. Instead, it requires consideration of technically feasible options, including a fair comparison to current practice, looking at costs and savings over the life-cycle. Companies often see, as a result, that there are options that make sense.

• The program has led to voluntary reductions by LQTUs of hundreds of millions of pounds of toxics.

Photo by Ad Meskens
Questions about the State of Planning

Has the one-plan taken over the world? (Requiring a “Cross-walk” frustrated streamlining aim. (Policy Suggestion: train inspectors to look for the equivalent components, or issue guidance that highlights the differences).

Has planning become preventive?
Has toxics use reduction been incorporated into it?

Have Emergency Response Teams merged with TURA (or P2) Teams?

August Hermann Knoop, 1919
THE ICP: CORE PLAN AND ANNEXES

The CORE PLAN: Fits in your glove compartment. Can be read quickly. Aids quick and right action. An effective and rapid response.

The ANNEXES: document preparedness. Ensures it gets done, enables an inspector to check. Prevention is annex 7. Prevention should be a primary purpose.

The annexes have two purposes: to ensure the core plan is good, and to make sure you never need to use it. This part needs BEEFING UP!
The Change we Need

From taking the chemical use as a given, and doing hazard analysis about how it is used, to *options analysis for input substitution and chemical use efficiency.*

Preventive Plan needs to examine *source of hazard*, not just manage it.

The plan that doesn’t prevent accidents *just limits damage.*

*Can you use less of the chemical that might explode, react with water, catch on fire? Can you accomplish the function it serves some other way? (HAVE YOU TRIED?) If you must use it, can you store it more safely? Can you move it around more securely? Can have safer procedures for using it? When you looked at costs of changing to safer products or processes did you consider the value of eliminating the need to plan or the costs of having an accident?*
Examples

- Solid acid catalyst for HF.
- Aqueous ammonia (or ammonia on demand from urea) for anhydrous.
- Chlorine bleach, UV and Ozone, for chlorine gas.
- Regenerating acids instead of storing them.
- Storing water reactives on the second floor.
- Stanchions so forklifts don’t hit pipes.
- “Management of Change” practice.
- Lightning rods.
- Policies to make sure truckers get enough sleep.
- The CSB recommendation after Danvers: written safety program to manage hazardous process operations. The program should:
  - Prohibit heating flammable or combustible liquids above their flashpoints in tanks inside buildings unless the tanks are sealed and vented to the building exterior.
  - Require safety controls to prevent overheating of flammable or combustible liquids.
To Be Clear

Good Emergency Planning reduces the incidence as well as the severity of accidents. But it will be **most effective** by addressing the **root cause** – the use of the chemical. A *good* plan ensures reactives are stored safely. *Better*: eliminate the reactive. **The question is: did the plan even examine options for doing that?**

Many P2 plans ignore what good emergency planning does incident history, “what could go wrong” analysis, or involve any sense of the potential for a costly response.

Much emergency planning skips the careful consideration of alternatives, or having a fair comparison to current toxics use, or the savings from reduced pollution. These include **escape from regulatory requirements**, faster process, and sometimes better quality as a result of process and alternatives examination.

Emergency planning might be conducted by safety and facility. P2 planning might be conducted by environmental, health, and hopefully production supervisors. They may never talk! The two functions/perspectives/teams can be integrated.
Results of One-Plan project

At EEM, emergency planning and P2 planning teams took a walkthrough together, and found themselves looking at large acid tanks. Emergency planners pointed out that the tanks were right by a river, and not far from houses and schools. They showed the booms and discussed how and when an evacuation would be necessary. The P2 team said: we have been suggesting to management FOR YEARS that we should investigate the option we identified for regenerating acid.

The option had been turned down by management because the savings in waste management and purchasing were not significant – acid is cheap. But now it became clear that if regeneration worked the large storage tanks would go away.

The emergency planners said, we have been suggesting we do something about this terrible risk for years, but the attitude seemed to be that there’s never been an accident, how real is this?

NEITHER effort alone was able to convince management. Putting together the perspectives gave a clearer picture of the benefits of reducing the problem at the source. Acid now being regenerated. Tanks are gone.
FRANKLIN PAINT

At Franklin paint, the hazard analysis was conducted as part of Annex 7 (prevention)
• greater recognition of a lack of inhouse capacity to respond
• concentrate on prevention.
• chemical storage was (little containment), made them see how close their flammables were to ignition sources. Made them consider PRODUCT REFORMULATION.

Because Franklin made paints to the requirements of local and state agencies, they had few options to change on their own from solvent-based to water-based. The change of input idea seemed impossible to do. They initiated a petitioning process to request such changes.

The changes took many years! But now the company offers many high-quality nonsolvent and nonlead paint varieties and wins awards for its performance.

The company illustrates not just the explosion that didn’t happen but that recognition of risk can be the beginning of the journey towards EXCELLENCE.
The Hazmat Process Rules

• Many large dangerous facilities are already held to and familiar with OSHA Process Safety Management and/or CAA Risk Management, and/or RCRA contingency, or CWA Facility Response Plans, or Spill Prevention, Control, and Countermeasure plans. (Some not so).

• NOW if you “process” hazardous materials you must be able to show local fire departments you are operating safely.
And now the need to think AGAIN

• You went out and checked that your storage tanks, your intakes, your berms, were all secure.
• Did you reckon on HURRICANE HARVEY?
• Have you checked the new flood maps or the projections?
• Considered storm intensity (lightning, wind)
• Tornado, wildfire?
Massachusetts Office of Technical Assistance Advisory Preventive Hazard Evaluation for Process Safety


- rreibste@bu.edu

- [www.trunity.com/ec-blog](http://www.trunity.com/ec-blog)
Building Chemical Safety into Climate Change Resiliency / Disaster Preparation through Pollution Prevention

Tiffany Skogstrom

Program Co-Chair

Outreach and Policy Analyst
Massachusetts Office of Technical Assistance

Environmental Business Council of New England
Energy Environment Economy
CHEMICAL SAFETY & CLIMATE CHANGE RESILIENCY

Tiffany Skogstrom, MPH
Outreach & Policy, Massachusetts Office of Technical Assistance (OTA)  
tiffany.skogstrom@mass.gov, 617-626-1086

@Mass_OTA
CHEMICAL SAFETY & CLIMATE CHANGE RESILIENCY

Toxics Use Reduction + Climate Change Resiliency Planning = Reduced Risk of Industrial Accidents
Rhonda Ragsdale
@profragsdale
There is a thick smell of oil in the air downtown #Houston
11:25 AM - Aug 27, 2017

RFH
@rth02
@DisasterPIO There is a widespread gas smell in Houston's East End. Any info?
12:52 PM - Aug 27, 2017

Raquel de Anda
@deAndaAnda
Rancid chemical smell near Houston @ValeroEnergy refinery. What's going on? Why all the flaring? Folks Can't Breathe #HurricaneHarvey
2:20 PM - Aug 27, 2017
First responders file suit against Arkema over ‘serious bodily injuries’ in Houston chemical plant fire after Hurricane Harvey

- First responders filed a lawsuit in Harris Count court alleging Arkema failed to take adequate safety steps to secure dangerous chemicals ahead of Hurricane Harvey
- The lawsuit filed by seven police, fire and emergency service workers seeks at least $1 million

Published 11:22 PM ET Thu, 7 Sept 2017

REUTERS
Floods
Chemical Releases & Spills
Emergency Shutdowns

Extreme Heat
Chemical Temperature
Explosion Risks
Drought (Cooling / Fire Suppression)

Climate Change & Chemical Releases

Extreme Cold
Power Outages
Frozen pipes
HVAC Failure

Storms
Power Outages
HVAC Failure
Infrastructure Failure
RESILIENCE PLAN

- Understand Flood / Weather Threat
- Identify Chemical Vulnerabilities & Consequences
- Identify Mitigation Measures
- Develop a Plan to Implement Mitigation Measures
IDENTIFY YOUR RISKS

MASS.GOV/EEA/OTA-CLIMATE
RESILIENCE PLAN

- Understand Flood / Weather Threat
- Identify Chemical Vulnerabilities & Consequences
- Identify Mitigation Measures
- Develop a Plan to Implement Mitigation Measures
Dangerous Chemical?

Human / Environmental Contact?

Potential for Hazard?
EVALUATE RISKS

- Chemical Properties
  - Toxic
  - Flammable
  - Combustible
  - Reactive
  - Corrosive

- Weather Risks
  - Flood
  - Hurricane
  - Freezing
  - Heat

- Chemical Storage
  - Secondary Containment
  - Compatibility
  - Refrigeration

- Toxics Use Reduction
  - Product Substitution
  - Reduce Inventory
  - Engineering
RESILIENCE PLAN

Understand Flood / Weather Threat

Identify Chemical Vulnerabilities & Consequences

Identify Mitigation Measures

Develop a Plan to Implement Mitigation Measures
MITIGATION

Secure & Safeguard Chemicals
- Store in secure location
- Move out of flood risk
- Raise tanks above floodwater level & secure

Remove Pressurized Chlorine & Gasses
If Cannot Remove:
- Disconnect
- Cap open-ended joints
- Secure

Keep Water Out
- Sandbag
- Plug floor drains
MITIGATION PARTNERSHIPS

Your Facility

Climate Change Emergency Planning Team

Local & State Government

Local Businesses
RESILIENCE PLAN

1. Understand Flood / Weather Threat
2. Identify Chemical Vulnerabilities & Consequences
3. Identify Mitigation Measures
4. Develop a Plan to Implement Mitigation Measures
INTERNAL PLANNING

- Educate staff on precipitation / temperature changes
- Train staff on storm preparation
- Identify toxics use reduction and other priorities, actions, time, cost and project lead
- Identify funding opportunities (TURI / DIA / MVP / FEMA)
- Develop, update and reassess emergency plans
- Emergency drills
- Participate in R/LEPC
- OTA site visits
EXTERNAL PLANNING

- TURI Grants
- ID Partnering Companies / Agencies
- Kick Off Meeting
- Site Visits
- ID Priorities
- Share equipment / storage space
- Emergency Drills
- DIA Grants
- MVP Planning
- Mutual Aid Agreement

- ID
- Priorities
- TURI
- Grants
- Partnersing
- Companies / Agencies
- Kick Off
- Meeting
- Site
- Visits
- Share
- equipment
- space
- Emergency
- Drills
- DIA
- Grants
- MVP
- Planning
- Mutual
- Aid
- Agreement
MARK RICHEY WOODWORKING – ENERGY EFFICIENCY AND TOXICS USE / WASTE REDUCTION

Almost Off the Grid

Massachusetts Toxics Users and Climate Vulnerability Factors

Reductions:

- 120 gallons lacquer thinner / acetone / other chemicals per year
- 1,200 gallons denatured alcohol per year
- 12 tons VOCs per year

Savings of $16,435
COLUMBIA MANUFACTURING – ZERO WASTEWATER DISCHARGE & HAZARDOUS WASTE REDUCTION

Massachusetts Toxics Users and Climate Vulnerability Factors

Reductions:

- 147,000 lbs of water per day in plating operations
- Recovered 98% of plating chemistry (nickel and chromic acid), saving 600 lbs per week
- Exempt from air / water discharge & hazardous waste treatment permits
- Savings of $3,000,000 in water / sewer fees, $3,850,000 nickel purchases, $8,000,000 chrome purchases
Free & Confidential Technical Assistance

Building Partnerships with Your Community and First Responders

Access to Toxics Use Reduction Grants & Resources

Identifying Toxics Use Reduction, Safer Chemical Storage, and Best Practices

Providing Expertise and Training on Toxic Chemicals

Ensuring That Your Business is in Compliance

OFFICE OF TECHNICAL ASSISTANCE AND TECHNOLOGY
Emergency Response & Planning

Boston Environmental Business Council – 16 July 2019

NICK CHILD
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
First impressions
In an emergency, who is in charge?
Duties of the Head of the Fire Department. Whenever the maintenance, operation, or use of any land, building, structure, material or other object or and part thereof, including vehicles used in the transport of hazardous materials constitutes a fire or explosion hazard which is dangerous or unsafe, or a menace to the public safety (including, but no limited to, fires, explosions, hazardous material incidents, motor vehicle accidents, structural collapses, mass casualty incidents, and emergency extrication incidents) and the action to be taken to eliminate such dangerous or unsafe condition or conditions which create, or tend to create, the same is not specifically provided for in 527 CMR, and unless otherwise prohibited by law, ordinance, by-law, regulation, the head of the fire department is hereby authorized and empowered to take such action as may be necessary to abate such dangerous or unsafe conditions or conditions (directing employees or other city or town departments and agencies) and including the evacuation of buildings and/or the transport of hazardous materials, the speed, routes, amounts, and hours of transport through the city, town, or district shall also be regulated.
Public Safety “First due & Size Up”

- Initial response hazmat Operations level (NFPA 472)
- Assess the incident to identify
  - Identify containers and materials involved.
  - Determine if hazardous materials have been released.
  - Evaluate the surrounding conditions.
  - What is going to happen in the near future.
- Preplans & chemical Tier 2 reports
- Need for hazmat Technician level
- Need for other agencies
Incident First Impressions

- Liaison who “talks normal”
- Convey competence and professionalism
- Meet at the gate
- Confirm personnel accountability
- Provide the high points of the incident
- Identify vulnerable receptors
- Provide maps and diagrams
- Provide supporting information
- Indicate understanding of Incident Command
Pre-Incident Relationships

- Walk-throughs
- Check-ins and updates
  - What’s new at your facility /
  - What’s new in the business
- Be a partner to the PRE-PLAN
- Identify specialty needs and how to get them
- Weather information
Facility site plans for responders

- Simplified facility map
- Location of the hazards
- Key access points
  - Doorways
  - Alarm panel
  - Sprinkler / stand pipes
- Hardwired information sources
  - Cameras, meters, etc.
- Drainage maps
- Underground utilities
Preparing for the emergency.

- “De-conflicting” priorities and objectives.
- Understanding the community where you work.
- Conducting a facility all-hazard analysis.
- Your own Continuity Of Operation Plan (COOP).
- Where are your operations vulnerable (occupancy, power, materials, etc.
- Your own Citizen Emergency Response Team (CERT).
Helpful tools

- WISER – National Institute of Health
- OLIVER – MassGIS
Contact Information

Nicholas J. Child
Chief Emergency Planning & Preparedness Officer
MassDept. Of Environmental Protection
Commissioner’s Office
1 Winter Street, Boston MA 02108

Nick.Child@Mass.Gov
(617) 574-6847 Desk
(508) 965-6318 Cell
(888) 304-1133 24/7 Emergency
Flooding and Chemical Safety

Shannon Jarbeau

Floodplain Specialist & CRS Coordinator
Barnstable County / Cape Cod Cooperative Extension & Woods Hole Sea Grant
Chemical Safety and Flooding
Overview

• Flooding Sources
• Climate Change
• Chemical Considerations During a Flood
• Planning Opportunities
Flooding Sources
Barnstable County Floodplains

Floodplains
- “100-Year”
- “500-Year”
Causes of Flooding: Storm Surge

A storm surge...
- Low pressure near eye pulls water higher.
- Winds pile up water and push it toward shore.
- A shallow coastline slope produces a greater surge than a steeper slope.

...and its destructive power
- The surge can begin before the storm hits, cutting off escape routes.
- Waves push the water inland faster than it can drain off.
- Floating debris can act as battering rams.
- Battering waves may erode beaches and damage buildings.

Sources:
- Caused by Hurricane Sandy, https://tc120.files.wordpress.com/2014/09/hurricane-sandy-stormsurgediagram-1.jpg?w=1008
- Map data ©2013 Google
- Source: NOAA, Weather Underground
Rainfall/Urban Flooding

- Heavy rain in short period of time
- Overflows stormwater systems
- Examples: Hurricanes Irene, Harvey, and Florence
- Local examples: Heavy rainstorms like 7/6/19 in Boston, 7/12/19 on Cape
Climate Change Impacts
Factors

• Heavy precipitation
• Sea level rise
• Severe storms
Precipitation Increases

Falmouth, MA July 2017

Source: National Climate Assessment 2018
Sea Level Rise

Table 3. Relative sea level rise estimates for Boston, MA. Global scenarios were adjusted to account for local vertical land movement with 2003 as the beginning year of analysis.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>2025</th>
<th>2038</th>
<th>2050</th>
<th>2063</th>
<th>2075</th>
<th>2088</th>
<th>2100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest</td>
<td>0.49</td>
<td>0.15</td>
<td>1.08</td>
<td>0.33</td>
<td>1.81</td>
<td>0.55</td>
<td>2.80</td>
</tr>
<tr>
<td>Intermediate High</td>
<td>0.36</td>
<td>0.11</td>
<td>0.73</td>
<td>0.22</td>
<td>1.19</td>
<td>0.36</td>
<td>1.80</td>
</tr>
<tr>
<td>Intermediate Low</td>
<td>0.24</td>
<td>0.07</td>
<td>0.43</td>
<td>0.13</td>
<td>0.65</td>
<td>0.20</td>
<td>0.92</td>
</tr>
<tr>
<td>Lowest (Historic Trend)</td>
<td>0.18</td>
<td>0.06</td>
<td>0.29</td>
<td>0.09</td>
<td>0.39</td>
<td>0.12</td>
<td>0.50</td>
</tr>
<tr>
<td>Range</td>
<td>0.31</td>
<td>0.09</td>
<td>0.79</td>
<td>0.24</td>
<td>1.42</td>
<td>0.43</td>
<td>2.30</td>
</tr>
</tbody>
</table>

Woods Hole, MA

10 year flood will be every other year (10% into 50%)
Future Storm Activity

GFDL Hurricane Model: Category 4 & 5 Hurricane Tracks (27 simulation years)

CMIP5 (Early 21st Century): 20 storms
CMIP3 (Late 21st Century): 28 storms
CMIP5 (Late 21st Century): 19 storms

Source: Geophysical Fluid Dynamics Lab, NOAA
Future Storm Activity

“We may need to begin planning for a category 3 hurricane landfall every decade or so rather than every 100 or 200 years.”

Climate forcing of unprecedented intense-hurricane activity in the last 2000 years
J.P. Donnelly et al., Earth’s Future, 23 February 2015
Chemical Considerations During a Flood
What Chemicals Might be a Problem?

- **Cleaning Products**
  - Oven cleaners
  - Drain cleaners
  - Wood and metal cleaners/polishers
  - Toilet cleaners
  - Tub, tile, shower cleaners
  - Bleach
  - Pool chemicals

- **Indoor Pesticides**
  - Ant sprays and baits
  - Cockroach sprays and baits
  - Flea repellents and shampoos
  - Bug sprays
  - Household insecticides
  - Moth repellents
  - Mouse and rat poisons and baits

- **Flammable Products**
  - Propane tanks and other compressed gas cylinders
  - Kerosene
  - Home heating oil
  - Diesel fuel
  - Gas/oil mix
  - Lighter fluid

- **Automotive Products**
  - Motor oil
  - Fuel additives
  - Carburetor and fuel injection cleaners
  - Air conditioning refrigerants
  - Starter fluids
  - Automatic batteries
  - Transmission and brake fluid
  - Antifreeze

- **Lawn and Garden Products**
  - Herbicides
  - Insecticides
  - Fungicides/wood preservatives

- **Workshop/Painting Supplies**
  - Adhesives and glues
  - Furniture strippers
  - Oil or enamel-based paints
  - Stains and finishes
  - Paint thinners and turpentine
  - Paint strippers and removers
  - Photographic chemicals
  - Fixatives and other solvents

- **Miscellaneous**
  - Batteries
  - Mercury thermostats/thermometers
  - Fluorescent light bulbs
  - Driveway sealer

*Source: EPA*
Management Tips

- Refer to each chemical’s Safety Data Sheet (SDS) for specific storage recommendations
- Put chemicals on second floors (but do not store above eye-level and be aware of temperature variations in attics)
- Store chemicals in airtight containers (if SDS confirms this is appropriate)
- Do not bring non-household items inside your business – this would present more safety hazards!
- Flood protection options – temporary barriers
- Keep containment materials on-site and accessible
- Store incompatible chemicals separately
- Drain gas lines
Risks of Contaminated Floodwaters

• People (direct exposure)
  • Public
  • First responders

• Drinking water
  • Pipe breaches
  • Lack of electricity/ functioning sanitation systems

• Environmental
  • Aquifer
  • Vegetation
  • Wildlife
Planning for Chemical Safety and Flooding
Municipal Resilience Planning Opportunities

• Municipal Vulnerability Preparedness (MVP) program
• Hazard Mitigation Plans
• Community Rating System (CRS)
Data Collection

- Flood information
  - Flood Insurance Rate Maps
  - Stormtide pathways maps
  - Storm surge maps
  - Sea level rise projections
- Chemical inventory
  - Types
  - Locations
Identify Possible Action Items

• Prohibit storage of hazardous waste in floodplain
• Invest in flood barriers for high-risk structures
• Outreach
  • Help businesses and homeowners identify hazards associated with chemical storage
  • Encourage hazardous chemical storage at higher building levels and in waterproof containers, when appropriate
  • Work with OTA to identify specific chemical risks and potential solutions
• And more!
Outcomes

• Implement action items
• Funding
  • MVP
  • Hazard Mitigation
  • Other
• Credit in Community Rating System
• Keep our drinking water, environment, and communities safe!
Thank you!

Shannon.Jarbeau@barnstablecounty.org
(508) 375-6952
Insurance Implications and Innovations in Emergency Action Planning

Janet Persechino

Technical Manager
Chemical Process Safety
Engineering Planning and Management (EPM)
Insurance Implications and Innovations in Emergency Action Planning

Presented by:
Persechino, Janet M.
jap@epm-inc.com
Engineering Planning and Management, Inc
www.epm-inc.com
508-532-7360
Statistics and Case Studies

Insurance Implications

Innovative Tools – Intelligent Emergency Action Plans
Emergency Action Plan Statistics

Recent 10 year period (FM Global clients)

- 1,351 total losses where ER was a factor
- 1,124 – Effective
- 224 – Ineffective
Emergency Action Plan Statistics

- Since 1959 FM Global documented more than 1,000 fire losses where sprinkler control valves were shut

Shut-valve losses by timeframe:
- Temporarily shut before fire: 44%
- Shut during fire: 27%
- Permanently shut: 20%
- Unknown timeframe: 9%

Source: FM Global clients
Case Study

- Fire at location with hazardous materials
  - No fire protection in the area of the fire
- Watchman spots the fire and calls FD
  - FD would not enter the building
- Burned for several hours
  - The hazardous materials were not in the affected area

NO EMERGENCY ACTION PLANNING
Case Study

Vacant building was approved to impair
• Neighboring plant was 10 feet away

New cameras, blocked up window
• Planning with the fire department

1 yr later guard sees smoke in a camera
• Fire consumed the mill but minimal damage to facility

EFFECTIVE EMERGENCY ACTION
PLAN
Resources

- NFPA 1, 101, 1561, 1600, 1620
- FM Global 10-1, 10-2, 10-5
- NIOSH/CDC/ASSP/FEMA
- Your carrier or broker
- Consultants
Statistics and Case Studies

Insurance Implications

Innovative Tools – Intelligent Emergency Action Plans
Property

Environmental

Liability – General/Product

Worker’s Compensation

Your Company

Auto
Insurance Implications

• Hazard Identification and risk assessments
• Understand the stages of each emergency
• Profile hazard event scenarios
• Identify needs
Execution Timeline

Fig. 1. Phases of Response
Documentation

KEY to satisfying insurance company’s requirements
» If it’s not documented it’s not credited
» Check and verify approach
» Be upfront
» Safety/Preparedness Climate
➢ Not a straight line from excellent programs to lower insurance rates
➢ Soft/hard market
➢ Will price aggressively on better/good risks
➢ Inherent risk – looking for lowest level of residual risk
➢ Want to see above and beyond – i.e. 2-3 feet above flood maps
➢ Total point/score card approach in comparison to risks in your SIC/NAISC code
➢ Injury rates compared to OSHA published rates
The Math

➢ EMR, EMOD, XMOD
➢ Experience Modification Rate
➢ 1 < EMOD < 1
➢ 3 year running history – largest/smallest removed

➢ Research your public history online
➢ Often consider settlement
Claims

WHO

➢ Any entity recognized by law
➢ Can support a claim for quantifiable damages shown to result from actions of the other parties
➢ People, corporation, municipality
Claims

ACTS

- Unintentional/Intentional
- Where intent is to cause harm can fall into criminal realm

✓ Contract
✓ Tort

Failure to comply with administrative regulations
Claims

Strict liability – without fault

➢ Does not require a demonstration of fault/negligence only that the rule was violated
➢ Intentional or negligent violation resulting in death can result in criminal negligence
Tort Claims

➢ Negligence – failure to exercise reasonable care – below the standard established by law to protect others against unreasonable risk

➢ Involves a foreseeable risk

➢ Conduct unreasonable in proportion to the danger

➢ Duty of Care – reasonable person vs special skills/professional negligence/ability to foresee the harm
Options

1. Think about your liability limits most common is $1M/$2M with $5M umbrella policy
2. Consider excess policies – these are reasonably priced
3. Examine your scenarios – offsite or third party consequences and likelihood of rare loss
4. Small companies susceptible to bankruptcy from underfunded losses
The Calculations

- Ask how they develop your loss expectancies (for weather events)
- Are the calculations reasonable – it’s a win/win
- They have the same goal – they want to get the numbers right and keep your business in operation!
Talking Points

Statistics and Case Studies

Insurance Implications

Innovative Tools – Intelligent Emergency Action Plans
Basics of Pre-fire Planning

• Typical plan contents
  » Physical and Site Considerations
  » Occupant Considerations
  » Water Supplies and FP Systems
  » Special Hazards
  » Emergency Operations
Basics of Pre-Fire Planning
Basics of Pre-Fire Planning

Folder Format

Menu Version
VISUAL INTELLIGENT PLANS FOR EMERGENCY RESPONSE

• PAPERLESS Pre-Fire Plans

• Vital data as quickly possible

• Intelligent functionality
  » Critical data with the touch of a finger
  » Saves time usually lost to flipping through books
  » User can focus on how to ACT based on data, rather than how or where to FIND the data

• Versatile design for use on PC, tablet, or hard copy
Communications

Plant Network Telephone
ERMERGENCY: Ext. 911
Control Room: Ext. 2000
Shift Manager: Ext. 2001
Security/CAS: Ext. 2222
Work Control: Ext. 5555
Fire Marshal: Ext. 3949

This Phone’s Extension: 6542

Fire Hose Cabinet

Fire Hose Cabinet HC-002
1.5 inch hose pre-connected

Safety Data Sheet

1. Product and company identification

Product name: DIESEL FUEL NO 2
MSDS #: 11155
Code: 11155
Product use: Fuel
Supplier: BP Prods. North America Inc.

EMERGENCY HEALTH INFORMATION:
1-800-2 BP-Spill (277-7455)

2. Hazards identification

Hazardous Materials - Cautions

Diesel Fuel Oil Tank TK-664-1
Capacity: 1,000 gallons

WARNING:

Combustible Liquid and Vapor
Vapor May Cause Flash Fire
Harmful If Inhaled
Harmful or Fatal Liquid If Aspirated into Lungs.
May Cause Respiratory Tract Irritation
Irritation Causes Headaches, Dizziness, Drowsiness, and Nausea, and May Lead to Unconsciousness.
Combustible Liquid. Harmful if swallowed. Aspiration hazard if swallowed. Can enter lungs and cause damage. Keep away from heat, sparks and flame. Avoid exposure, follow special instructions. If inhaled, do not breathe vapor or dust. Do not ingest. If inhaled, do not induce vomiting. Avoid contact with eyes, skin and clothing. Contains material that may cause cancer based on animal data. Risk of cancer depends on duration and level of exposure. Use with adequate ventilation. Keep container tightly closed and stored until ready for use. Wash thoroughly after handling.

Readers of Entry

Exposure Health Effects

Eyes: Slightly irritating to the eyes.
Skin: Prolonged or repeated contact can debit the skin and lead to irritation and/or dermatitis.
Inhalation: May cause respiratory tract irritation; irritation causes headaches, dizziness, drowsiness and nausea and may lead to unconsciousness. See toxicological information (Section 15).
Questions?

Janet Persechino
Technical Manager – Chemical Process Safety
Engineering Planning and Management, Inc. (EPM)

jap@epm-inc.com

508-532-7360
Moderated Discussion

Moderator: Will Campbell, Tetra Tech

Panelists:

• Nicholas Child, Mass DEP
• Shannon Jarbeau, Barnstable County / Cape Cod Cooperative Extension
• Janet Persechino, EPM
• Rick Reibstein, Boston University
• Tiffany Skogstrom, Massachusetts OTA
EBC Climate Change Program

Preventing Toxic Exposures During Climate Events

Severe Weather & Emergency Preparedness for Facilities