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Editor Fusible Link
Brad Hart &
Ana Crisostomo
Tel.: 646-572-3920
Fax: 646-871-3920

Society of
Fire Protection Engineers
New Jersey Chapter

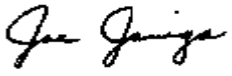
FUSIBLE LINK

JANUARY 2015

President's Message…

Greetings folks. As we enter this holiday season and prepare for a new year I hope we can all look back with fondness and pride in our accomplishments of 2014 and have plans for more in 2015. Check your old holiday lights for frayed wiring, or do like me and put them on GFCI protected outlets. Remember about City Fire's Fire Facts #22 on January 8 and 9 and come to our January meeting which will be held on the 12th.

In the meantime here's a wish for peace, health and happiness to you all.



President, NJ Chapter SFPE

Minutes of the December 8 meeting will be read at the January 12 meeting and will be published in the February 2015 edition of the Fusible Link

Fire Tests for Rack Storage of Expanded Uncartoned Plastics Completed - NFPA

NFPA 13

>> IN COMPLIANCE

NFPA 13 | NFPA.ORG/13 | BY MATT KLAUS

Storage Evolution

A recent series of tests yields important information for the protection of rack storage

Author(s): Matt Klaus. Published on October 30, 2014.

IN ITS MARCH/APRIL 2014 COVER STORY, "Safety by Design", NFPA Journal looked at the challenges facing big-box retailers to provide sprinkler protection for their facilities. One of the more difficult issues for these retailers has been identifying protection schemes for certain storage arrangements not addressed by NFPA 13, Installation of Sprinkler Systems.

The ultimate test for these rack storage arrangements is the protection of exposed, expanded Group A plastics, typically Styrofoam or similar products. If a sprinkler system can protect these materials, the thinking goes, it can protect just about anything. Full-scale testing of this arrangement has been around for some time, but the data have not been made available to the NFPA 13 technical committees. As a result, the standard has not addressed a protection scheme for this arrangement, and it has not addressed other, less extreme arrangements that could be protected following the guidelines for exposed, expanded Group A plastics.

Until now. Thanks to the efforts of the Fire Protection Research Foundation and the Property Insurance Research Group, full-scale testing of exposed, expanded plastics in racks was conducted between 2012 and 2014. The project, which included a total of eight tests of bagged polystyrene foam meat trays on wooden pallets, was developed to provide the NFPA 13 technical committees with data on ceiling-only sprinkler protection schemes for this difficult storage arrangement. The tests looked at varying ceiling and storage heights, clearances between the stored plastics and the ceiling, and the use of vertical barriers as a way to prevent horizontal spread of fire through the racks.

The critical piece of data from this testing was the number of sprinklers that operated during each test. This is information that, along with the test set-up parameters, is used to create an acceptable protection scheme in NFPA 13. The number of activated K-25 ESFR (early suppression, fast response) sprinklers ranged from six to 18. In three tests, 10 or fewer sprinklers activated, and these tests were reviewed by the technical committee as the basis for new language in the standard. The committee typically adds a "safety factor" of 50 percent to the test data, and the initial design considered 15 sprinklers.

The drawback of this approach, however, was that a 15-sprinkler design using K-25 sprinklers with a 60 psi operating pressure would call for a tremendous amount of water. In an effort to reduce the hydraulic demand for this arrangement, an additional test was scheduled. In that test, conducted in June, only seven sprinklers operated; the technical committee now had three tests in which seven or fewer sprinklers activated.

Applying the safety factor of 50 percent allowed the committee to review and approve a 12-sprinkler, ceiling-only design for the protection of exposed, expanded Group A plastics, based on a maximum storage height of 25 feet for single-, double-, and multiple-row rack configurations. The concept must go through the NFPA 13 correlating committee and the NFPA Annual Technical Meeting in Chicago in June 2015, but it appears that NFPA has added an important component to the standard.

This change has ramifications for a number of stakeholders. A new design scheme for protecting exposed, expanded Group A plastics will allow almost anyone who utilizes high-ceiling rack storage arrangements—manufacturers, distributors, retailers, and others—greater flexibility in the packaging of their products, which translates to more efficient warehousing operations and cost savings through the reduction of storage space and packaging materials. The testing project also provides an ideal example of how research supports the development of codes and standards.

NFPA Large Loss Fire Report for 2013 - The following are excerpts from that report - note the comments on which ones had suppression systems (not many) and the ones that had sprinklers, most were only partial sprinklers or the systems did not operate for reasons not described

Where the Large Loss Fires Occurred

Of the 21 large-loss fires that occurred last year, 17 involved structures, resulting in a total property loss of $387.7 million. Six of these structure fires occurred in manufacturing properties: a fertilizer plant, an egg processing plant, an oil reprocessing plant, a steel mill arc-furnace building, a plastics laminate plant, and an aluminum die-cast plant. These six fires resulted in total losses of $202.6 million.

Four more fires occurred in special properties. Two of the properties were apartment buildings under construction, and the other two were a highway tunnel and a highway interchange that were severely damaged following separate vehicle crashes. The combined loss of these four fires was $52.7 million.

Another three fires occurred in residential properties, one each in a single-family home, a high-rise apartment building, and a cluster of rental cabins. The combined losses for these fires totaled $76.9 million.

Of the final four structure fires, two occurred in restaurants and resulted in a combined loss of $25 million. The third and fourth fires occurred in a warehouse and a high school, and produced losses of $20 million and $10.5 million, respectively.

Of the four non-structure large-loss fires that occurred last year, one was a vehicle fire involving a passenger jet parked at the gate at an airport, which did $10 million in damage, and three were wildland fires that resulted in a combined loss of $447.1 million. One of these wildland fires was the Black Forest Fire, which alone resulted in almost 50 percent of the total large-loss fire losses in 2013. These four non-structure fires resulted in combined losses of $457.1 million, or 54.1 percent of the combined losses of all the large-loss fires.

2013 Large-Loss Fires by Property Type

NFPA Journal looks at NFPA's Fire Analysis and Research Division's report on large loss fires in the United States in 2013. Here are all of the nation's large loss fires sorted by property type.

The cause of ignition was reported for 11 of the 21 large-loss fires, including 10 structure fires and one non-structure fire. Three of the structure fires resulted from mechanical or part failures, including a gas line leak, a failure causing the release of molten materials, and a mechanical failure that caused equipment to overheat. The two fires that damaged highway structures were started by vehicle crashes. Other structure fires occurred when a nail penetrated a wire, causing high-resistive heating; when an industrial furnace backfired; when a furnace was started improperly; and when smoking materials were abandoned or discarded too close to combustibles. The final structure fire for which the cause is known was an arson fire. The one non-structure fire for which the cause is known occurred in the aircraft when its lithium-ion cell battery ignited.

The operating status of the structure was reported for 14 of the structure fires. In 10 cases, the facility was open and operating, eight at full operation and two in partial operation. Four were closed and unoccupied. Eight of the 17 structure fires began between 11 p.m. and 7 a.m.

Detection and suppression systems

Information about automatic fire or smoke detection equipment was reported for 12 of the 17 large-loss structure fires. Seven of the properties had no automatic detection equipment. The other five structures had smoke detection equipment that provided complete coverage in one and unreported coverage in four. Three structures had heat and smoke detection systems that provided complete coverage in one structure and unreported coverage in two. Two structures had unreported types of systems that provided unknown coverage. Only two of the systems operated effectively. The operation of the other three was not known.

Information about automatic suppression equipment was reported for 14 of the 17 structure fires. Nine of the structures had no suppression equipment. Of the remaining five, three had wet-pipe sprinklers, one of which provided complete coverage and two unreported coverage. One structure had a dry-pipe system of unreported coverage, and one was an unreported type system.

Two of the five suppression systems operated, and three did not. Of the systems that operated, one was effective and helped contain the fire, and one system operated but was ineffective because of explosion damage. Of the two that did not operate, one system had not been completely installed, and one was not in the area of ignition. The operation of the final system was not reported.

Complete information on both detection and suppression equipment was reported for 12 of the 17 large-loss structure fires. Four of the structures had neither a detection nor a suppression system. Four structures had just detection equipment, and three had just suppression equipment. Only one structure had both types of systems.

What we can learn

In 2013, there were five fewer large-loss fires than there were the year before, and there was a drop in associated property losses of $617.9 million. This decrease in fires of 19.2 percent and decrease in damage of 42.2 percent is largely due to the fact that there was only one fire in 2013 that did more than $400 in damage. In 2012, there were two.

In seven of the past 10 years, at least one fire has resulted in a loss of more than $100 million. In 2013, there were two such fires: a wildfire and an explosion and fire in a fertilizer plant. Over the past 10 years, 21 fires have resulted in more than $100 million in losses, including one that did more than $1 billion in damage. Of these largest losses, 10 were wildland fires, nine were structure fires, and two were vehicle fires.

Adhering to the fire protection principles reflected in NFPA's codes and standards is essential if we are to reduce the occurrence of large-loss fires and explosions in the United States. Proper construction, proper use of equipment, and proper procedures in chemical processes, storage, and housekeeping will make fires less likely to occur and help limit fire spread should a fire occur. Proper design, maintenance, and operation of fire protection systems and features can keep a fire that does occur from becoming a large-loss fire.

Note the paragraphs in red - it would seem to be a no-brainer but apparently regulators seem to be doomed to repeat the mistakes of the past and to ignore the lessons learned from massive losses.

CSB Board Members Identify Modernization of Process Safety Management Regulations as the Agency's Second "Most Wanted Safety Improvement"

Washington, DC, December 1, 2014 – Today the U.S. Chemical Safety Board formally announced that to "Modernize U.S. Process Safety Management Regulations" is the Board's newest Most Wanted Safety Improvement, concluding that implementation of key federal and state CSB safety recommendations will result in significant improvement of Process Safety Management (PSM) regulations in the United States.

Over the last two decades, the CSB has made a number of recommendations related to OSHA's PSM program and EPA's Risk Management Program (RMP), many of which have not been fully implemented. By adding the modernizing of U.S. process safety management regulations to the CSB's Most Wanted Safety Improvement list, the agency is identifying this issue as one of the board's most important recommendations-related goals.

CSB Chairperson Rafael Moure-Eraso said, "As Chairperson of the CSB I see this as an important opportunity to advance national process safety management reform by advocating for this issue as part of the board's Most Wanted Chemical Safety Improvements Program. My hope is that reform will help to prevent future catastrophic accidents."

The CSB notes that despite some positive improvements in PSM regulations in the U.S., regulations have undergone little reform since their inception in the 1990s. Of particular interest are the board's recent investigations of major refinery incidents that found that PSM and RMP, although written as performance-based regulations, appear to function primarily as reactive and activity-based regulatory frameworks that require extensive rulemaking to modify. This potentially results in stagnating risk levels, even as industry-recommended best practices and technology continue to advance in the U.S. and overseas.

Specifically, the CSB's investigations of recent **major refinery accidents found that there was no requirement to reduce risks to As Low As Reasonably Practicable (ALARP); there was no mechanism to ensure continuous safety improvement; no requirement to implement inherent safety or the hierarchy of controls; that there should be an increased role for workers and worker representatives in process safety management; and that there needs to be a more proactive, technically qualified regulator.**

As a result of these findings, the CSB made recommendations at the federal, state, and local levels to prevent major incidents by adopting a more rigorous regulatory system that requires covered facilities to continuously reduce major hazard risks.

CSB Board Member Mark Griffon said, "Modernizing PSM regulations is an issue rooted in critical safety recommendations made over the last two decades to prevent recurrence of catastrophic industrial accidents. Recent activities have provided the board with a unique opportunity to advocate for these much needed reforms."

In particular, President Obama's August 1, 2013, Executive Order 13650, *Improving Chemical Facility Safety and Security* has resulted in both OSHA and the EPA issuing Requests for Information (RFI), and both agencies may soon initiate rulemaking to revise the existing regulations. The CSB submitted a comprehensive response to each RFI detailing needed improvements to the existing regulations, which are supported by a number of CSB ongoing and completed investigations.

For PSM, the CSB recommended that OSHA:

- **Expand the rule's coverage to include the oil and gas exploration and production sector**
- **Cover reactive chemical hazards**
- **Add additional management system elements to include the use of leading and lagging indicators to drive process safety performance and provide stop work authority to employees;**
- **Update existing Process Hazard Analysis requirements to include the documented use of inherently safer systems, hierarchy of controls, damage mechanism hazard reviews, and sufficient and adequate safeguards;**
- **Develop more explicit requirements for facility/process siting and human factors, including fatigue;**

For RMP, in addition to PSM program related enhancements mentioned above, the CSB recommended that EPA:

- Expand the rule's coverage to include reactive chemicals, high and/or low explosives, and ammonium nitrate as regulated substances and to change enforcement policies for retail facilities;
- Enhance development and reporting of worst case and alternate release scenarios; and
- Add new prevention program requirements, including automated detection and monitoring, contractor selection and oversight, public disclosure of information, and, for petroleum refineries, attributes of goal-setting regulatory approaches.

Dr. Moure-Eraso concluded, "The CSB has a statutory, Congressionally mandated task to address the sufficiency of OSHA and EPA regulations. That is a key obligation of the CSB, and I intend to continue pursuing this mandate vigorously."

To view full list of recommendations related to PSM reform CLICK HERE

To view the CSB's Most Wanted Page CLICK HERE

In 2013, the Board voted to make the adoption of a combustible dust standard for general industry as the first priority in the CSB's "Most Wanted Safety Improvements" program, which will result in increased advocacy related to the issue. To view public meeting presentations and statements, please visit the meeting's event page.

More details on the accidents listed above and the Board's recommendations are available on CSB's website in completed investigations and recommendations.

The CSB is an independent federal agency charged with investigating serious chemical accidents. The agency's board members are appointed by the president and confirmed by the Senate. CSB investigations look into all aspects of chemical accidents, including physical causes such as equipment failure as well as inadequacies in regulations, industry standards, and safety management systems.

The Board does not issue citations or fines but does make safety recommendations to plants, industry organizations, labor groups, and regulatory agencies such as OSHA and EPA. Visit our website, www.csb.gov.

For more information, contact Communications Manager Hillary Cohen, cell 202-446-8094 or email public@csb.gov

2175 K. Street, NW | Washington, DC 20037-1809
Phone: (202) 261-7600 | Fax: (202) 261-7650 | www.csb.gov

Coffee Break Training - Fire Protection Series

Hazardous Materials: Containment Pallets

No. FP-2014-47 November 25, 2014

Learning Objective: The student will be able to explain the use of containment pallets as spill control and secondary containment alternatives.

Last week's Coffee Break Training explained the difference between spill control and secondary containment for liquid and solid hazardous materials. In some applications, **containment pallets** provide a suitable alternative to permanent construction.

This yellow polyethylene containment pallet with the black plastic deck is used for the outdoor storage of a corrosive hazardous liquid.

Containment pallets are a portable alternative to spill control and secondary containment construction. Depending upon the design and manufacturer, they can be moved by some types of powered industrial trucks. (See Coffee Break Training FP-2006-39 for important safety warnings.) Depending upon the design and manufacturer, containment pallets may hold up to 10,000 pounds (4,536 kilograms) of solid or liquid materials.

Containment pallets may be constructed of low- or high-density polyethylene. Some include a drain plug to remove spilled liquids or accumulations of rainwater.

When used as an alternative to spill control and secondary containment for outdoor storage, containment pallets must:

- Have a liquid-tight sump accessible for visual inspection.
- Have a sump designed to contain not less than 66 gallons (250 liters).
- Be protected by a canopy or other structure to prevent collection of rainwater within the sump.
- Have exposed surfaces that are compatible with the material stored.

Chemical compatibility is important to safe storage. Polyethylene is susceptible to attack by some chemicals that may cause stress cracking, swelling, oxidation or may permeate the polyethylene. These reactions may reduce the physical strength of the containment pallet or deck, causing it to collapse and spill the hazardous material away from the containment feature.

It is also important to remember that most secondary containment products are designed to hold leaked chemicals for only a short time. Secondary containment units should be inspected regularly and cleaned of spilled materials. You should check with the pallet manufacturer to determine whether the materials to be stored are compatible with the pallet. One manufacturer has a lengthy list of incompatible materials.

For more information, consider enrolling in the National Fire Academy course "Hazardous Materials Code Enforcement" (R0615). Information and applications can be obtained at http://apps.usfa.fema.gov/nfacourses/catalog/details/10504.

Idle Pallets Plus

Huge Calif. Pallet Factory Fire Causes $3M in Damages

Nov 28, 2014 Source: The Associated Press

In this Thursday, Nov. 27, 2014, photo provided by the San Bernardino County Fire Department firefighters work to extinguish a fire at a sprawling Southern California pallet yard. Firefighters found four acres of pallets stacked up to 30 feet high fully engulfed in flames Thursday. (AP Photo/San Bernardino County Fire Department)
Photo credit: The Associated Press

In this Thursday, Nov. 27, 2014, photo provided by the San Bernardino County Fire Department firefighters work to extinguish a fire at a sprawling Southern California pallet yard. Firefighters found four acres of pallets stacked up to 30 feet high fully engulfed in flames Thursday. (AP Photo/San Bernardino County Fire Department)
Photo credit: The Associated Press

In this Thursday, Nov. 27, 2014, photo provided by the San Bernardino County Fire Department firefighters work to extinguish a fire at a sprawling Southern California pallet yard. Firefighters found four acres of pallets stacked up to 30 feet high fully engulfed in flames Thursday.
Photo credit: (AP Photo/San Bernardino County Fire Department)

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Photo credit: The Associated Press

Vicki Serafin
Affiliated FM
400 Interpace Parkway, Bldg C
3rd Floor
Parsippany, NJ 07054-1196
Phone: (973) 541-6771
Fax: (973) 541-6909

MEETING NOTICE

Date: January 12, 2015

Place: Hanover Manor
16 Eagle Rock Avenue
East Hanover, NJ 07936

Price: $30.00

Dinner: 5:00-6:00 (Cash bar for mixed drinks)
Dinner at 6 PM

Topic: What's Eating Your Pipes? How Corrosion can Cause Your Sprinkler Systems to Fail

Speaker: Doug Nadeau, TruVUE

PLEASE COMPLETE AND RETURN WITH YOUR CHECK PAYABLE TO "SFPE NJ CHAPTER" TO:

Vicki Lynn Serafin
Affiliated FM Insurance
300 Kimball Drive
Suite 200
Parsippany, NJ 07054
Phone: 973-541-6771 / Fax: 973-541-6909
vicki.serafin@affiliatedfm.com

OR PAY AT THE DOOR

NAME: _____

COMPANY:_____TELEPHONE:_____

Meeting Dates/Programs 2014-2015

Jan. 12	What's Eating Your Pipes? How Corrosion can Cause Your Sprinkler Systems to Fail" Doug Nadeau, TruVUE
Feb. 2	Current Fire Protection Technologies—Frank Savino, United Fire
March 2	Foam Systems Design & Acceptance Testing' Gary Ryman FM Global & Fay Purvis Vector Fire
April 9	Joint Seminar' with NJ AFAA
May 4	"Solar Panel Fire Hazard' Dick Davis, FM Global, meeting at FM Parsippany, NJ - Breakfast meeting at FM's Parsippany, NJ office
June 8	Comparison of UL 286 and ASTM E84' JC Harrington FM Global & 'SFPE Update' Julie Gordon SFPE

2014-2015 Chapter Committees

STANDING COMMITTEES

Program
Ernesto Vega-Janica

Arrangements
Vicki Serafin, Chairperson

Membership
Dave Gluckman, Chairman

Nominating
Ed Armm, Chairman (IPP)
Chris Vitale
John Antola, Jr.

Scholarship Fund
Ed Armm–Chairman
Mike Newman
Chris Vitale

Scholarship Outing
Rich Reitberger—Chairman
J. Snyder

Auditing
Vanessa Gallagher, Chairman
Rich Reitberger

Archivist/Historian
Jim Tolos, Vicki & Nicole

Speakers Gifts
Rich Reitberger

Communications
Fusible Link—Brad Hart
Ana Crisostomo—Coordinator

Communications-Other
Paul McGrath
Mike Newman

Mailing/Automation/e-mail—Vicki Serafin, Chairperson

Webmaster—Mike Newman & Paul McGrath

SPECIAL COMMITTEES

Spring Seminar
Ed Armm—Chairman
Dave Kurasz—Sprinkler Speakers Coordinator
Jim Loftus—Alarm Speakers Coordinator
Paul McGrath—Vendor Coordinator

Bylaws
Jim Tolos, Chairman
Joe Janiga
John Antola

Career Recruitment
Rich Reitberger, Chairman
Donna Spano
Marios Michaelides

Golf Outing
NY Chapter for 2014

Chapter Excellence Awards
Ernesto Vega-Janica
Chris Vitale

PE Examination
Donna Spano

Chapter Seminar/Field Trip
Richard Reitberger, Chairman
Ed Armm , CoChairman
Dave Gluckman
Nathan Gorey

HELPFUL LINKS

ADAAG http://www.access-board.gov/adaag/about/index.htm
AFAA National http://www.afaa.org/
AFSA http://www.firesprinkler.org/
ANSI http://web.ansi.org/
ASHRAE http://www.ashrae.org/
Campus-Firewatch http://www.campus-firewatch.com/
Coffee Break Training http://www.usfa.dhs.gov/nfa/coffee-break/
CPSC http://www.cpsc.gov/
CSAA http://www.csaaul.org/
Municipal Codes (E Codes) http://www.generalcode.com/Webcode2.html
FDNY http://nyc.gov/html/fdny/html/home2.shtml
FM Global http://www.fmglobal.com/
FSDANY http://www.fsdany.org/regs.htm
FSI http://www.firesprinklerinitiative.org/
FSSA http://www.fssa.net/
Fire Tech Productions—Nicet Training (FTP) http://www.firetech.com/
Home Fire Spklr Coalition http://www.homefiresprinkler.org/
HVAC Bld. Control Fire Safety http://www.iklimnet.com/hotelfires/hotelfiresmain.html
AFAA-NJ http://www.afaanj.org/
International Code Council - http://www.iccsafe.org/
International Code Council Residential Sprinkler Exam - http://www.iccsafe.org/news/nr/2009/0709_ResidentialSprinklerExam.pdf
The Joint Commission (JCAHO) - http://www.jointcommission.org/www.JointCommission.org/
Material safety data Sheets (MSDS-OSHA Site) - http://www.osha.gov/SLTC/hazardcommunications/index.html
National of Fire Equipment Distributors (NAFED) - http://www.nafed.org/index.cfm