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# FUSIBLE LINK

December 2019

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## President's Message....

I want to thank Rich Reitberger for stepping in for me at the November NJSFPE Chapter meeting. Todd Ossman, Treasurer of the SFPE Education & Science Foundation joined us to explain the Foundations' mission and share some of their projects. If you or your organization are able, donations will support advances in fire protection engineering. NJSFPE makes an annual donation to the foundation.

Lucas Kim, Director of Engineering with Engineered Corrosion Solutions discussed corrosion management for fire sprinkler systems. Corrosion can cause unseen impairments to fire sprinkler systems, particularly, dry sprinkler and pre-action systems. The primary solution involves replacing compressed air with highly pure nitrogen in the dry portions of the sprinkler systems. Proper installation and maintenance of Nitrogen Generators can abate the effects of corrosion for decades. Lucas also spoke about automatic air venting devices for use in wet sprinkler systems.

The NJSFPE Annual Holiday Party and December Chapter meeting will on Monday, December 2<sup>nd</sup> at the Hanover Manor in East Hanover. Jerry Naylis with Technical Fire Service will be making a lively presentation on Recent Large Losses in New Jersey.

I look forward to see you there!

Paul

Chapter President

## Minutes of November 4, 2019 Meeting

The NJ-SFPE met on November 4 at the Hanover Manor. VP Rich Reitberger, filling in for Chapter President Paul McGrath, opened the meeting with a salute to the flag and customary introductions. There were fifteen in attendance. The minutes of the September and October meeting were accepted by the membership.

Treasurer Marios Michaelides presented the September and October Treasurers reports which was reviewed and accepted. Rich discussed the upcoming meeting schedule and the Holiday Party which will be at the Hanover Manor Monday December 2<sup>nd</sup>. Mark your calendars now !!

A recap was made of the Society's October Annual meeting in Arizona.

Todd Ossman Treasurer of the SFPE's Educational & Scientific Foundation provided a brief discussion of the Foundation's purpose; to enhance the scientific understanding of fire, described some of their activities and made a request for donations to support the cause. Incidentally the NJ Chapter supports the Foundation and has been a contributor for several years.

Following dinner Mr. Lucas Kirn, Director of Engineering for Engineered Corrosion Solutions made a very informative presentation on Corrosion Management for Fire Sprinkler Systems. Beginning with a description of oxidation corrosion in iron and steel pipe he explained the usual sites of sprinkler corrosion occur around water accumulations in dry systems and air pockets in wet systems. He explained the use of nitrogen to remove oxygen from these, primarily dry and preaction but also wet systems. Over the past several years the technology of the membrane separators has improved so that with reasonable maintenance they can perform reliably for up to 20 years. He also discussed the use of automatic air venting devices for wet systems and video inspection systems for both wet and dry. There was a lively discussion and Mr. Kirn knowledgeably answered our many questions. More technical information can be found here - <https://www.ecscorrosion.com/resource/white-papers/>

The meeting was adjourned at 8:10PM.

Submitted by Joe Janiga, Secretary and Rich Reitberger, V.P.



The Engineers' Club of New Jersey cordially invites you to the annual Joint Engineering Association Holiday Banquet.

Network, dine and celebrate the holiday season with leading professionals in the construction industry. The annual Holiday Banquet sells out every year. Please reserve your seat as soon possible.



Date

Tuesday, December 10, 2019

Time

6:00pm - 9:00pm

Location

Suburban Golf Club

1730 Morris Avenue

Union, NJ 07083



The open bar cocktail hour starts at 6:00PM. Dinner begins at 7:00PM.

Bring your business card. Multiple door prizes, including a TV, is up for grabs!  
Over a dozen baskets and prizes to support The Hope for Veterans non-profit sheltering homeless veterans in our community.

\$20 for 25 tickets to win baskets and 50/50 raffle.

100% of raffle sales donated to HOPE FOR VETERANS NON-PROFIT.



## Invitation

**NJ Chapter Holiday Party**  
**Monday December 2<sup>nd</sup>, 2019**  
5pm – 6pm Wine Tasting & Open Bar  
(Beer, Wine & Soda)

Holiday Buffet Dinner Follows

After Dinner Speaker – Jerry Naylis  
“Learning From Losses”

Plus Baskets of Cheer to Benefit Hope For Veterans  
\$30 pp Register [Here](#)



## Chemical Safety Board Releases Factual Update and New Animation Detailing the Events of the Massive Explosion and Fire at the PES Refinery in Philadelphia, PA

Like 150 Share Tweet

Philadelphia, PA, October 16, 2019 – Today, the US Chemical Safety Board (CSB) released a [factual update](#) into the June 21, 2019, explosion and fire at the Philadelphia Energy Solutions (PES) Refinery in Philadelphia. The factual update notes that a pipe elbow, which had corroded to about half the thickness of a credit card, appears to have ruptured in the refinery's alkylation unit, releasing process fluid that included over 5,000 pounds of hydrofluoric acid, or HF. The leaking process fluid formed a large ground-hugging vapor cloud. Two minutes later, the cloud ignited, causing a massive fire and explosions.



Interim Executive Dr. Kristen Kulinowski said, "Since 2015, the CSB has investigated three major incidents at refineries that utilize HF for alkylation. Incidents in Superior, WI, and Torrance, CA, fortunately did not result in an HF release. That was not the case here in Philadelphia. Though the main tank holding HF was not breached, HF was a component of the process fluid released from the alkylation unit. We are lucky there were no serious injuries or fatalities."

While the CSB's investigation is still ongoing, the factual update notes important details of the incident collected through interviewing witnesses, gathering evidence and ultimately, piecing together the events that led to the explosion:

- The piping was susceptible to corrosion from the hydrofluoric acid that was in the process fluid. The elbow that ruptured corroded faster than the rest of the piping in this part of the process.
- While pipe thickness in this section of the unit was periodically measured to monitor corrosion rates, the thickness of the elbow that failed had not been monitored for corrosion. The piece of piping that failed had a high nickel and copper content. Various industry publications have found that carbon steel with a higher percentage of nickel and copper corrodes at a faster rate than carbon steel with a lower percentage when used in a process with hydrofluoric acid.
- A secondary event at the PES refinery occurred when the V-1 Treater Feed Surge Drum ruptured, which launched a fragment of the vessel weighing 38,000 pounds across the Schuylkill River. Two other large fragments landed within the PES Refinery.

CSB Supervisory Investigator Lauren Grim said, "Corrosion is not a new issue for the CSB. In its prior investigation of a 2012 Chevron Refinery fire we determined that corrosion caused the rupture of a piping component. Similarly, the 2009 Silver Eagle refinery fire was also caused by the failure of piping that had thinned due to corrosion."

The CSB's [interim animation](#) details the events which occurred at the PES refinery on June 21<sup>st</sup>, view the full animation [HERE](#).

During the news conference Interim Executive Kulinowski noted that moving forward the CSB is examining the need for more robust reviews of corrosion mechanisms as well as looking more closely at the use of HF in the refining process.

The CSB is an independent, non-regulatory federal agency whose mission is to drive chemical safety change through independent investigations to protect people and the environment. The agency's board members are appointed by the President and confirmed by the Senate.

The CSB's investigations look into all aspects of chemical incidents, including physical causes such as equipment failure as well as inadequacies in regulations, industry standards, and safety management systems. For more information, contact [public@csb.gov](mailto:public@csb.gov).

## **Wildland Urban Interface Fire Operational Requirements and Capability Analysis**

Executive Summary In December of 2017, the Federal Emergency Management Agency (FEMA) Administrator requested the Department of Homeland Security (DHS) Science and Technology (S&T) research new and emerging technology that could be applied to wildland fire incident response, given the loss of life that occurred in California during the fall of 2017 in Santa Rosa and Ventura. In response to the request, DHS S&T—in collaboration with FEMA, the U.S. Fire Administration (USFA), and other key stakeholder experts—determined wildland urban interface (WUI) incidents and lifesaving functions as the optimal areas for DHS S&T to explore technology innovation. As a result, S&T formed an Integrated Project Team (IPT) and initiated the WUI Fire Operational Requirements and Technology Capability Analysis Project. Over the course of the project, the IPT identified areas of innovation in wildland fire incident relating to wildland fire preparedness and mitigation and enhanced wildland fire suppression practices, including resistant infrastructure planning, building materials, and building codes. To meet the Administrator's request, however, the IPT focused its efforts on requirements for improving operational capabilities and incident response to save lives in WUI fires. In doing so, the interagency IPT planned and conducted a series of consultative tabletop exercises (TTXs) and subject matter expert (SME) engagements to assess opportunities to enable life-saving activities during WUI fires. These activities elicited information requirements and capability gaps from expert firefighters, fire behaviorists, command staff, emergency management officials, and other key stakeholders. The IPT then identified potential solutions to meet these requirements and fill associated capability gaps, convening a panel of interdisciplinary SMEs to review and assess candidate solutions. The project team identified three overarching conclusions that represent consistent themes captured throughout the course of the TTXs and expert engagements. These conclusions framed the development of key findings and more detailed analysis across the mission space of WUI fire response: 1. Time Criticality of WUI Fire Incidents: WUI fire incidents require immediate protective and response actions to save lives. The conflagration created when a wildland fire enters populated areas is unpredictable and can rapidly devastate these areas, threatening lives. Interventions and solutions that improve decision making and response in the initial minutes of a WUI fire are vital. 2. Available Technology Solutions Exist: There exist available technologies (both government and commercial), which—if implemented—could immediately help emergency responders reduce the number of lives lost during WUI fire incidents. In particular, these technologies could immediately support ignition detection, fire tracking, public information and warning, evacuation, and responder safety. Improving capabilities in other elements of the WUI response (i.e. preparedness and critical infrastructure) may require investing in adaptable or developable solutions that are not immediately available. 3. Public Education and Preparedness Measures are Vital: Public education and preparedness are essential to reducing the number of lives lost to WUI fire incidents.

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There is no solution more effective than preventing an ignition in the first place and ensuring the at-risk communities are prepared at the grassroots level to face wildland fire dangers. The principal conclusions of this project are distilled into a set of seven key findings (Table 1). These key findings describe lines of effort addressing priority capability gaps that, if implemented, could substantially improve immediate life-saving efforts during WUI fire incidents. The key findings listed below are considered equally important to this objective and are not listed in any priority order.

## WUI FIRE OPERATIONAL REQUIREMENTS AND TECHNOLOGY CAPABILITY ANALYSIS

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Table 1: Summary of Key Findings

1. Implement and scale the use of state-of-the-art remote sensing assets to provide state and local stakeholders real-time, accurate, low-cost ignition detection and tracking information— especially fire perimeter using a mix of in situ, aerial, and space-based systems.
  2. Improve the ability of available and adaptable public alert and warning technologies to deliver more targeted and effective message across the whole community, particularly to individuals with disabilities and others with Access and Functional Needs (AFN).
  3. Improve use of key public and private social media and internet resources and capabilities to appropriately share data and adapt existing applications to enable more efficient and effective evacuation—e.g., expand and accelerate public-private partnerships through Integrated Public Alert and Warnings System (IPAWS) to include WUI incident-related evacuations, warning, and alerting.
  4. Support broader use of existing fire modeling and forecasting tools for pre-incident planning; while also advancing efforts to create high-confidence, timely WUI fire-specific models that can be used to inform response tactics during extreme conditions.
  5. Increase infrastructure resilience, especially critical infrastructure lifelines and support functions for wildland fire response—e.g., improve the resilience, interoperability, and reliability of communications, power utilities, digital links, and data center infrastructure.
  6. Integrate private, open, and crowdsourced data, resources, and capabilities to improve public safety situational awareness of WUI fire ignition detection and tracking.
  7. Support wide-scale adoption of interoperable, low-cost blue-force tracking technologies that feed near real-time situational awareness across key stakeholders, missions, and operations.
- DHS S&T and its partners recognized that technology solutions do not exist in a vacuum. Improving capabilities requires a holistic, integrated suite of solutions which include technology as well as critical measures relating to policy, plans,

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organizational relationships, grants, public education, mitigation activities, training and exercises, and other non-technology components of preparedness. Some relevant lines of effort that should be considered as part of any solution implementation include:

- Support efforts to educate the public on WUI fire risks and integrate existing education programs into broader disaster education efforts.
- Support a systematic approach to address the needs of the AFN population to include tailored information, warning, and evacuation support before and during WUI fire incidents by sharing practices, establishing standards, creating regulation, etc. in conjunction with Key Finding #2.
- Design and socialize standards to create uniform national evacuation doctrine to propagate consistent evacuation terminology, authorities, and thresholds.
- Expand training and exercise programs to improve interagency and cross-disciplinary coordination in support of wildfire operations.
- Encourage broader adoption of physical mitigation measures (e.g., building codes) through grant investment, continued education of best practices and risks, and retrofitting.
- Increase infrastructure resilience, especially critical infrastructure lifelines and support functions.
- Disseminate best management practices on utilizing new technologies by sponsoring conferences and workshops and issuing best practice guidance and lessons learned from pilot programs, successful case studies, and proven implementations across various jurisdictions and agencies.

While the IPT endeavored to comprehensively assess requirements, gaps, and candidate solutions, both technology and the nature of the threat will continue to change. As a result, efforts to improve WUI fire response capabilities must stay at the forefront of innovation and technology development.

## Meeting Dates/Programs 2019-2020

Most meetings are held at the Hanover Manor, 16 Eagle Rock Ave., East Hanover, NJ.  
Social hour starts at 5:00PM, Dinner meeting starts at 6:00PM.

2019-2020 SFPE Program Schedule	Presenter	Date
<b>Latest Lessons Learned from Losses</b>	Jerry Naylis, Technical Fire Services	December 2, 2019
<b>No Meeting Scheduled</b>		January 6, 2020
<b>Cla-Val RE: Breach Valves</b>	Bill Moore	February 3, 2020
<b>Power over the Ethernet</b>	Ernesto Vega Janica, IEEE	March 2, 2020
<b>NJSFPE &amp; AFAANJ Technical Seminar</b>	Various Presenters	April 22, 2020
<b>United Fire Protection Facility Tour on Special Hazards</b>	Frank Savino, United Fire Protection	May 4, 2020
<b>NJ-NY Metro Education Foundation Golf Outing</b>	New York County Club	June 1, 2020
<b>Fire Sprinkler Anti Freeze Protection</b>	Amber Bodner, Johnson Controls Fire Protection	June 8, 2020
<b>NFPA Conference &amp; Expo</b>	National Fire Protection Association	June 15-18, 2020



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## 2018-2019 Chapter Committees

### STANDING COMMITTEES

**Program**  
Joe Janiga

**Arrangements**  
Vicki Serafin, Chairperson

**Membership**  
Rich Reitberger

**Nominating**  
Rich Reitberger

**Auditing**  
Vanessa Gallagher, Chairman

**Archivist/Historian**  
Vicki Serafin

**Speakers Gifts**  
Rich Reitberger

**Communications**  
Fusible Link—Brad Hart  
bradhart07438@yahoo.com  
Lindsey Taylor—Coordinator

**Communications-Other**  
Paul McGrath

### SPECIAL COMMITTEES

**Spring Seminar**  
Jim Loftus

**Bylaws**  
Rich Reitberger

**Career Recruitment**  
Tim Costello

**Chapter Excellence Awards**  
Paul McGrath

**PE Examination**  
Donna Spano & Marios Michaelides

**Legislative**  
Jerry Naylis

**Finance**  
Dave Gluckman

**Fire Prevention Week Grant Program**  
David Gluckman

### HELPFUL LINKS

**ADAAG** <http://www.access-board.gov/adaag/about/index.htm>

**AFAA National** <http://www.afaanet.org/>

**AFFSA** <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 Spkrl 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](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>