President’s Message…

We are planning our October Field trip to General Dynamics, Electric Boat in Groton Connecticut for Tuesday, Oct. 7th. This should be a very interesting, you might even say unique experience and I hope you will be joining us. Because of security pre-screening needs if you haven’t registered yet it’s probably too late.

We had an excellent presentation by John Cholin on Sept 8. John spoke to us about dust hazards and Process Hazard Analysis for dust operations (a/k/a DHA). He showed a relatively straightforward process of looking at the individual pieces of a system to determine if a fire or explosion hazard or both exist. It is always an eye opener to see the examples and hear about how little dust can cause so much damage so quickly.

For Fire Prevention Week this year the Chapter created a grant program focused on keeping older adults safe from fire. Four New Jersey Fire Departments were awarded $250 grants to support work they do in that regard. The Departments were Bergenfield, New Brunswick, North Plainfield & Ridgefield Park. It was good to read about the work these and the other applicant departments are doing to keep the community safe. One of the recipients responded; “…I want to thank you and the NJ SFPE for selecting us as a grant recipient. These funds will greatly assist us in advancing the cause of fire safety within our community and especially for one of our at risk groups of people. We appreciate the work of the NJ SFPE and applaud you for stepping up to help the fire service fulfill its mission.”

Finally, we have heard you loud and clear. Thanks to those of you who responded to our survey about possible speakers and topics for this Chapter year. We are following your feedback and arranging to have the speakers and presentations you’ve told us you think are the most worthwhile.

President, NJ Chapter SFPE
Minutes of the SFPE – NJ Chapter Meeting – Sept. 8, 2014

President Joe Janiga convened the meeting at 6:10 PM at the Hanover Manor, E. Hanover, NJ with a salute to the flag and the customary introductions. There were 13 attendees including the speaker.

The minutes from the June, 2014 meeting were approved as read by Michael Newman, Chapter Secretary.

The Treasurer’s Report for August, 2014 was approved as presented by Chris Vitale, Assistant Treasurer.

Rich Reitberger presented the Audit Committee report to the membership. The chapter approved the membership applications for Bill Barbanes of RSA and Michael Loeffler of FM Global.

Joe Janiga updated the membership on the upcoming bus trip to Electric Boat.

Joe Janiga updated the membership concerning the grant program for local fire departments and their initiatives concerning senior fire and life safety. Bergenfield, North Plainfield, Ridgefield Park and New Brunswick will each be receiving $250 grants.

John Cholin gave a presentation to the chapter concerning dust explosions.

The meeting was adjourned at 8:15 PM.
Industry Update – Kidde Product Recall
(taken from XL GAPS Prevention News Sept 2014 edition)

Kidde has recalled about 1.2 million smoke and combination smoke/CO alarms sold in the United States and about 112,000 units sold in Canada. This recall involves Kidde residential smoke alarm model i12010S with manufacture dates between December 18, 2013 and May 13, 2014, combination smoke/CO alarm il2010SCO with manufacture dates between December 30, 2013 and May 13, 2014, and combination smoke/CO alarm model KN-COSM-IBA with manufacture date between October 22, 2013 and May 13, 2014.

They are hard-wired into a home’s electric power. The il2010S and il2010SCO come with sealed 10 year batteries inside. The KN-COSM-IBA model has a compartment on the front for installation of replaceable AA backup batteries. The alarms are white, round and measure about 5 to 6 inches in diameter. Kidde is engraved on the front of the alarm. Kidde, the model number and manufacture dates are printed on a label on the back of the alarm. “Always On” is also engraved on the front of alarms with sealed 10-year batteries.

The alarms were sold through CED, City Electric Supply, HD Supply, Home Depot, Menards Inc. and other retailers, electrical distributors and online at Amazon.com, HomeDepot.com and shopkidde.com from January 2014 through July 2014.

The link to the recall notice is: http://www.cpsc.gov/en/Recalls/2014/Kidde-Recalls-Smoke-and-Combination-SmokeCO-Alarms/#remedy

At the end of 2013, the worldwide photovoltaic (PV) market had an installed capacity of 139 GW peak. This is an increase of almost 70 GW over 2011. The largest share of newly installed capacity in 2013 comes from China followed by Japan and USA. Growth in South America is less than was expected.

Political decisions in several European countries to reduce PV incentives have largely contributed to the fact that Europe has lost its leadership position in new installations. In a number of countries the newly installed capacity in 2013 declined with over 50% compared to 2012. Germany is still the largest player in Europe.

This is an update of earlier articles that were published in 2011 and 2013.

PV Panel Testing
Third party testing and certification of panels was discussed in 2013. Loss statistics discussed later in this article demonstrate their importance.

Installation Standards Update
The following installation guides were updated:
- UK: Guide to the installation of PV systems - 2012 – MCS – ECA which can be downloaded from their website.²
- Germany: Solarednergieanlagen - RAL GZ-966 – June 2011 (German only) which can be downloaded from their website.³

The NFPA Research foundation published in February 2014 the "Commercial Roof-mounted Photovoltaic System Installation Best Practices Review and All Hazard Assessment" report. This is not an installation guide but it provides in depth information and is a good reading source.

Revisions of Approval Standard UL 1703 - 2012
In 2012 a revised version of ANSI / UL 1703 - Standard for Safety for Flat-Plate Photovoltaic Modules and Panels was published. This addresses a number of installation issues that were encountered in the field.

The importance of the instruction manual is addressed and that deviations in the installation may lead to loss of the UL listing of the panels.

For example the use of top clamps to mount the panels is only allowed if it is included in the instruction manual.

Fire ratings - Standoff roof systems
- In the USA roof coverings are tested for external fire exposure to ASTM E108 / ANSI/UL 790 – Standard Test methods for Fire tests of Roof coverings. There are 3 types of tests which give a final roof cover rating of Class A, B, or C. Two of the tests (spread of flame and burning brand) are also used for PV modules.
- Traditionally roof systems and PV modules were tested completely independently.
- Between 2009 and 2013 several tests were conducted with standoff panels on roofs to see if these have an influence on the external fire rating of the underlying roof. The final report of these tests was published in August 2013 and can be downloaded at http://www.solarabc.org/about/publications/reports/flammability-testing/pdfs/SolarABCs-35-2013-1.pdf
It should be clear to all installers and owners that one cannot cover the entire roof surface with PV panels. This not only makes roof and system maintenance difficult but also severely restricts the firefighter access.

- Parameters that influence the behavior are the roof slope, the panel slope in relation to roof slope, distance between roof and panel, and the setback of the panel versus roof edge.
- This led to a revision of UL 1703 in 2013. This includes now a complete new fire classification test which tests the PV module, mounting system and underlying roof as a system.
- In Europe there is no testing standard that evaluates the offset panel in conjunction with the roof cover system.

The potential of debris accumulation at and underneath PV panels will largely depend on the angle to the roof and distance between the panels and the roof. The removal of debris should be part of the preventive maintenance program. In certain type of installations it might be beneficial to install a wire screen to prevent accumulation underneath the panels in the first place.

Fire ratings—Building integrated roof systems
Building integrated systems are not affected by the above changes.

PV installations and firefighter safety... is there an issue?
Fire Fighter safety has been discussed in the March 2011 and February 2013 articles.

The 2014 Edition of the USA National Electrical Code (NEC) (NFPA 70) covers PV Systems in Article 690 and includes a number of new requirements.

One item of interest is the new paragraph 690.12 - Rapid shutdown of PV systems on roofs. There is however no indication which equipment should perform this shutdown. It also does not apply to wiring, etc that is within 3m (10ft) of the module array.

The most promising new technology being developed place communication and control features directly at each module level. These "smart modules" could communicate with the inverter and shutoff modules "remotely".

The actual cause is still under investigation but the presence of a PV system that covered basically the entire roof may have considerably contributed to the total loss.

Current installed technology does not permit to reduce the power output of the PV installation to a level that is safe to humans. Proper distance needs to be observed, especially in cases when part of the installation might be already damaged.

The roof of the warehouse (see photo on page 7) was basically entirely covered with panels with some individual areas over 4,000 m² (43,000 ft²). It is not entirely clear from the aerial that was taken before the loss, but it appears that the main reason for having the subdivisions was the presence of fire barrier wall parapets. The need for adequate access of fire fighters to all areas of the roof to perform emergency tasks does not seem to have been considered enough.

Also, a roof fire with PV panels on top is much more difficult to fight as the applied water will have difficulty to reach the seat of the fire.

It should be clear to all installers and owners that one cannot cover the entire roof surface with PV panels. This not only makes roof and system maintenance difficult but also severely restricts the firefighter access.

Therefore it is important that emergency access to the roof is provided with pathways to specific areas, provide for smoke venting opportunities and for emergency egress from the roof.

NFPA 1 – Fire Code (2012) chapter 11.12 covers in more detail the required space around edges of the roof, pathways, ventilation openings, and maximum array sizes. The same requirements can be found in the International Fire code (IFC).

Comprehensive layout examples can be found at [http://]
Understand that the above are minimum requirements only. Independent of any legal requirements it is important that Fire Officials are involved already in the planning phase to ensure that the proposed layouts meet their needs.

Loss statistics
The German Magazine Schadenprisma published earlier 2014 an article in which they discuss PV related fire losses. The fire loss data is being collected by the German Fraunhofer Institute using an online system in which installers/operators can enter loss data on a voluntary basis.

The article analyses the data that was collected up to end 2012. Approximately 420 fire and heat related losses are reported that involved a PV system. Forty-eight percent of the reported losses were caused by a PV system component.

The analysis does not differentiate between industrial and domestic properties and does not give any loss amounts. However, one can still extract some useful information.

Chart 1 (above) shows the type of system that was involved in the loss.

In approx. 110 cases the fire cause could be established. In over 50% of the cases it was a planning and/or installation mistake. See Chart 2.

Chart 3 shows fire damage results. In approx. 60% the damage was limited to a PV component or panel.

Emerging Risks
Flexible membrane roof integrated PV modules are not new, but it is to be expected that these will play a larger role in the future. These can be used as weather proofing system in single ply membrane or in build-up systems. Proper evaluation of the underlying roof structure regarding combustibility and close cooperation with the fire officials will be even more important with these of systems, in regards to emergency forces roof access practices.

The energy of photovoltaics system is normally used directly in the plant or exported to the public network. However, sometimes battery systems are used to store the energy so that it can be used during periods that the PV system is not producing any or little energy. Besides traditional battery systems, one option is to use Li-ion batteries. The advantage is high energy densities, but the disadvantage is currently the high price for larger systems.

An article published in the August 2014 Edition of the German Magazine “Brandschutz”7 addresses some of the potential issues:

• Existing safety standards may not address all issues or only cover Li-ion batteries partly. Safety standards for car batteries are more stringent.
• Existence of “low quality” products on the market
• Battery management ageing and system failure
• Loss of containment or in extreme cases explosions caused by external fires that involve the battery systems setting free hazardous components
• Potential of failures when overcharged

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(Endnotes)
1 Global Market outlook for photovoltaics 2014 – 2016, BNEF
2 Guide to the installation of PV systems – 2012 – MGS – ECA
3 NIPA Research Foundation Report February 2014
4 Commercial rooftop systems photovoltaics system installation.pdf
5 http://solarprofessional.com/articles/design-installation/7279-models-impact-installers
Scientists are Building a Cyberinfrastructure to Predict and Visualize Wildfire Behavior

**WIFIRE system will use sophisticated computer techniques to monitor and predict the spread of wildfire.**

As the trend for larger and more frequent wildfires continues, a team of scientists, engineers, technologists, firefighters and government and industry professionals is working on a project, called WIFIRE, to build an end-to-end cyberinfrastructure for simulation, prediction and visualization of wildfire behavior.

The WIFIRE system will analyze wildfire dynamics with specific emphasis on the climate. The system will integrate heterogeneous satellite information and remote sensor data by computational techniques like signal processing, visualization, modeling and data assimilation to develop a scalable method to monitor weather patterns and predict the spread of a wildfire.

The project started with a three-year, $2.65 million grant to the University of California at San Diego in October 2013 when participants in the project began integration and cataloging of data from sensors, satellites and scientific models to create scalable wildfire models. Participants include the San Diego Supercomputer Center (SDSC), the California Institute for Telecommunications and Information Technology’s Qualcomm Institute and the University of Maryland.

WIFIRE will include the remote sensor network that’s part of the High Performance Wireless Research and Education Network, started by SDSC in 2000. That program has been collecting environmental data for the last decade, which has been merged with computational models into visualizations and shared with partners, including the U.S. Forest Service and the California Department of Forestry and Fire Protection.

“WIFIRE will be scalable to users with different skill levels using specialized Web interfaces and user-specific alerts for environmental events broadcast to receivers before, during and after a wildfire,” said Ilkay Altintas, principal investigator for WIFIRE, in an SDCS news story. “This approach allows many sensors to be subjected to user-specific data algorithms to generate threshold alerts within seconds.”

Altintas said integration of the data into fire image data and models will lead to better situational awareness, response and decision-making at the state, local and federal levels.

She said the project’s findings will advance the understanding of wildfires and that knowledge will be transferable to other regions, both nationally and globally. “Proposed solutions will be readily available and transferable through open source workflows and Web services, as UC San Diego has done for data sharing during past disasters such as the 2010 Haiti earthquake and the 2011 tsunami and earthquake in Japan.”

*This staff report was originally published by Emergency Management*
NJ Chapter has started to award grants to local fire prevention bureaus to increase education of fire prevention for older adults

The chapter has received an application for grant award from the Bergenfield Fire Dept. Below is a note of thanks to the Chapter:

On behalf of the Bergenfield Fire Department I want to thank you and the NJ SFPE for selecting us as a grant recipient. These funds will greatly assist us in advancing the cause of fire safety within our community and especially for one of our at risk groups of people. We appreciate the work of the NJ SFPE and applaud you for stepping up to help the fire service fulfill its mission.

Gerard Naylis, Deputy Fire Chief

The Chapter has also issued grants to the Fire Marshal’s office in Ridgefield Park; New Brunswick and North Plainfield.

Court Voids Much of $180M Award Over ConAgra Silo Fire

(Reuters) — A federal appeals court on Tuesday said ConAgra Foods Inc. was not liable for a 2010 fire and explosion at an Illinois flour mill that burned three workers, and overturned much of a nearly $180 million jury award against the packaged foods company and a contractor. ConAgra had hired West Side Salvage Inc. to help save the contents of a wheat pellet silo at a facility in Chester, Illinois, located about 60 miles south of St. Louis.

According to court papers, the silo had been smoldering for several weeks before it exploded on April 27, 2010, injuring Justin Becker, who was employed by West Side, and John Jentz and Robert Schmidt, who were employed by a subcontractor.

Mr. Jentz suffered burns covering more than 70% of his body, while Mr. Becker’s lungs were scarred from the inhalation of fumes, the papers show.

Writing for a three-judge 7th Circuit panel, Circuit Judge Frank Easterbrook agreed that ConAgra was not liable under Illinois law for having hired West Side, an independent contractor, to address an unsafe condition in the silo because the “feared event” — the explosion — occurred.

"West Side could have negotiated for an indemnity or insurance for its benefit (and that of its workers and subcontractors) but did not do so," Judge Easterbrook wrote.
NJ Chapter wins SFPE National Silver Chapter Excellence Award

The NJ Chapter has received notification that we have won the “Silver Chapter Excellence Award” per the notification below. Many thanks to all in the Chapter that have worked hard and contributed to its success. Special thanks go to Ernesto Vega-Janica and Chris Vitale for gathering all the data needed and submitting it and the application to national.

Congratulations to you and the New Jersey Chapter on being selected as a SILVER - Chapter Excellence Award Receipt. The work and contributions of the chapter to the profession and the Society are inspirational and something to be honored.

The award will be given during the Senate Chapter Meeting being held Sunday, October 12, at the Hilton Long Beach from 3:30 pm to 4:45 pm.

Could you kindly RSVP by Wednesday, September 17th if a chapter representative will attend to accept this honor?

Congratulations on receiving this honor from SFPE and your colleagues around the world. We are proud of your accomplishments and very grateful for the work and advancements you have made for the profession.

The joint NY/NJ Chapter Scholarship Fund at Work

During the Chapter year of Aug 1 2013 to July 31, 2014, the NY and NJ chapter provided scholarships to 5 individuals totaling $17,000. The recipients were:

- Zack Czelada,
- Shawn Mahoney
- Tyler Lambet
- Raymond Ranellone
- Jacob Czarnowski
Using methanol in as a fuel source on open Lab benches

Most of us hear and read about the recent Discovery Center incident noted below. It brought back memories of nearly the exact same incident that left me with 2nd degree burns on both hands at the ripe old age of 12.

That of course was before I knew better and the severity of the hazard associated with flammable liquids.

Statement of CSB Chairperson Rafael Moure-Eraso Warning Against Use of Methanol During Laboratory and Classroom Combustion Demonstrations, in the Wake of Reno, Nevada, Museum Fire

Last week a team of CSB investigators deployed to the Terry Lee Wells Discovery Museum (The Discovery) in Reno, Nevada, where a flash fire on September 3 injured children and adults viewing a science demonstration. Nine people – eight of them children – were transported to the hospital for evaluation of burn injuries, and one child with more serious burns was admitted to the hospital for treatment.

CSB investigators spent two days interviewing witnesses and museum personnel, examining the site, and reviewing relevant documents and safety procedures. The Discovery’s leadership and personnel cooperated fully with the investigation and expressed their desire for positive changes to prevent similar incidents in the future.

Our investigative team determined that the incident occurred during a “fire tornado” demonstration where salts of different elements were combusted in a dish in the presence of alcohol-soaked cotton balls, while spinning on a lazy Susan-type rotating tray. This produces a tornado-like colored flame that rises in the air. The incident happened during a version where boric acid was to be burned in the presence of a methanol-soaked cotton ball. When the cotton failed to ignite it was realized that it had not been adequately wetted with methanol. More methanol was added to the cotton from a four-liter (one gallon) plastic bottle. Unknown to personnel, the cotton ball was likely continuing to smolder, and it ignited the freshly added methanol and flashed back to the bottle. Burning methanol then sprayed from the bottle toward the nearby audience of adults and children visiting the museum.

This unfortunate incident is similar to a number of others that have occurred around the country during lab or classroom demonstrations where methanol has been used as a fuel for combustion. In 2006, high school student Calais Weber was severely burned, and others were injured, at an Ohio high school during a similar demonstration of a chemical “rainbow” that involved combusting salts with methanol. Calais’ burns were so serious she had to be placed in a medically induced coma and required multiple skin grafts. Calais’ ongoing ordeal was described in a poignant video we released in December 2013, called “After the Rainbow.”

In 2012, more students and a teacher were burned, and some were hospitalized, in a methanol-based experiment at a middle school in Liverpool, New York. Then in 2014, a high school student was severely burned by a methanol fire during another rainbow experiment gone awry. And there are many other examples.
Methanol is an essential chemical and an emerging energy resource with a multitude of important industrial and environmental uses. But in the cautionary words of Greg Dolan, CEO of the Methanol Institute, which represents the manufacturing community, “Like gasoline, methanol is a toxic and flammable chemical and should only be handled in appropriate settings, and that would certainly not include museums and classrooms.

Methanol readily emits heavier-than-air flammable vapors and the liquid has a low flash point, meaning it can ignite at room temperature in the presence of an ignition source. This creates an unacceptable risk of flash fire whenever any appreciable quantities of methanol are handled in the open lab or classroom in the presence of pervasive ignition sources, such as open flames, heat sources, or sparks. There is also a significant risk of flashback to any nearby methanol bulk container, as was the case in this last incident in Reno, Nevada.

Similar concerns have been raised by the Committee on Chemical Safety of the American Chemical Society, which this year called on schools and teachers to immediately end all “rainbow” demonstrations involving methanol or other flammable solvents on open benches. In the words of ACS safety experts, “The ‘Rainbow’ demonstration performed on an open bench using a flammable solvent is a high risk operation.” There are well-known safer alternatives to the rainbow demonstration where no methanol is used, only wooden sticks soaked in chemical salts dissolved in water.

The recent incidents of methanol fires in schools are just one example of what can happen when lab demonstrations are adopted and used – with the best of educational intentions – but without a thorough review of the hazards and the development of robust safety procedures.

Today I am calling on all schools, museums, and science educators to discontinue any use of bulk methanol – or other similar flammables – in lab demonstrations that involve combustion, open flames, or ignition sources. There are safer alternative ways to demonstrate the same scientific phenomena, and many teachers are already using them. Any use of methanol or other flammables should be either avoided completely or restricted to minimal amounts, which have been safely dispensed at remote locations. Bulk containers of flammable liquids must never be positioned or handled near viewing audiences, especially when there are potential ignition sources present.

As scientists and engineers, we share in the enjoyment of both teachers and students in creating and watching chemical demonstrations. However, safety must be the absolute priority in all such endeavors. We have seen too many kids and adults suffer tragic injuries to do otherwise.
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Oct. 7</td>
<td>Field Trip—Electric Boat, Groton, CT</td>
</tr>
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<td>Nov. 3</td>
<td>TBA</td>
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<tr>
<td>Dec. 8</td>
<td>The 1984 Great Adventure - Haunted Castle fire revisited and remodeled - Would sprinklers have prevented loss of Life” - Jack Fairchild, Ballinger Consulting</td>
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<tr>
<td>Jan. 12</td>
<td>What’s Eating Your Pipes? How Corrosion can Cause Your Sprinkler Systems to Fail” Doug Nadeau, TruVUE</td>
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<td>Feb. 2</td>
<td>TBA</td>
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<tr>
<td>March 2</td>
<td>Foam Systems Design &amp; Acceptance Testing’ Gary Ryman FM Global &amp; Fay Purvis Vector Fire</td>
</tr>
<tr>
<td>April 9</td>
<td>Joint Seminar’ with NJ AFAA</td>
</tr>
<tr>
<td>May 4</td>
<td>Solar Panel Fire Hazard’ Dick Davis, FM Global</td>
</tr>
<tr>
<td>June 8</td>
<td>Comparison of UL 286 and ASTM E84’ JC Harrington FM Global &amp; ‘SFPE Update’ Julie Gordon SFPE</td>
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**JMCC**

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