

Class Descriptions

Brian Blomstrom – McNeil's Driver Training

Paul Firth, Jim Tuller, Jeromy Benard – Arson Class

Dan Hammerberg – Instructor 1 TtT

Meredith Hawes - NFPA

Bill Hopson – Leadership for the Fire Service Instructor

This is a LEADERSHIP presentation, delivered in a traditional Workshop style format, which will specifically benefit Company Officers (Of any level), Training Officers and Fire Instructors, who create, design, deliver and evaluate fire service training. This presentation is highly motivational, very fast faced, achievable task/goal/objective based and provides ALL attendees with immediately applicable LEADERSHIP skills. This presentation requires extensive attendee participation along with the use of modern technology and provides attendees with multiple opportunities to present specific portions of the course. This presentation is nationally vetted and tested (FDIC Workshop) and has met with success at previous Michigan Fire Instructors Conferences. The presentation content is entirely self-created and often meets and/or exceeds local, State and National C.E.U. curriculum requirements.

Brian Kazmierzak - Hybrid Fire Academy and Fire Officer Programs

Richard Mahaney – Responding to a Train Derailment

RESPONDING TO A TRAIN DERAILMENT

Objectives: The student will:

1. Be able to recognize various types of railroad cars.
2. Be able to read and extract information from a “train list”.
3. Be able to prioritize chemical hazard information that is provided for them.
4. Be able to create a “site drawing” of a railroad derailment scene.
5. Be able to develop a plan of actions to take for a safe railroad derailment response.

The students will be provided a 32 car HO scale train derailment involving model railroad cars. The students will be organized into teams to make a size up and collect needed information from the railroad derailment, the train list and chemical hazard information. The students will be asked to prioritize the chemicals and the railroad cars that need to taken care first and the following an order based on hazards. There be a process to recognize three different types of tank cars based on shapes and silhouettes.

Gregory Mowbray, Adam Carrol, Michael – All Things Lithium

The proposed lecture is for a 4 hour block of instruction / overview to participants / instructors attending the 2023 MFSIA conference. The goal of this program is to educate fire service instructors on the current topics related to Lithium-ion, BESS and BEV. With the delivered content the attending fire service instructor will have the tools and know how to in building programs for their departments. This lecture is designed to bring the most up to date information, and be able to deliver to their staff in a manner that fits their demographics.

Objectives:

- Participants will have a working knowledge in recognition of hazards associated with lithium-ion batteries
- Participants will have a working knowledge in firefighting operations associated with with stored energy systems
- Participants will have a working knowledge in firefighter safety practices when operating with a stored energy system
- Participants will have a working knowledge of post incident actions
- Participants will have increased knowledge in providing public education material and information in stored energy systems and components

Instructional Outline / Topics

Recognition of Hazards

- Where are Lithium-Ion Batteries Found?
 - Consumer Electronics
 - Micro Mobility Devices
 - Electric Vehicles (Hybrid Vehicles)
 - Energy Storage Systems
 - Recycling Centers and Waste Management Locations
- Explain the 6 different Lithium-ion chemistries:
 - Lithium Cobalt Oxide (most popular in consumer-facing devices)
 - Lithium Manganese Oxide
 - Lithium Nickel Manganese Cobalt Oxide
 - Lithium Nickel Cobalt Aluminium Oxide
 - Lithium Titanate

Explain thermal runaway and propagation, including the hazards associated with gases from off-gassing cells.

- Use of Full SCBA including facepiece is critical in the response of all incidents.

Discuss engineered solutions in BESS (Battery Energy Storage Solutions), where units are expected to burn

Present after action on Surprise AZ incident and its affects on four firefighters.

- Major changes since that incident with IFC/NFPA 1 and NFPA 855 with a high emphasis on firefighter safety

Key Actions

- Work to update your records reporting system to include a special study that Lithium Ion Batteries were involved in the incident or even the cause.
- Emerging technologies, there are new chemistries and battery types evolving.
- UL The science of firefighting and lithium ion batteries <https://fsri.org/researchupdate/online-training-available-science-fire-and-explosion-hazards-lithium-ion-batteries>

Firefighting Operations (Extinguishment?)

- What to do with a Lithium-Ion Battery Fire
 - Difference between thermal runaway and cells that are involved in fire
 - We can not extinguish, we can cool and limit cell to cell spread (propagation). This is a sustained flow of water over time. GPM varies with size of object (from 15-70). Psi is only significant for pattern development (hoseline vs. sprinkler). Used in conjunction with TIC to get at least below 150F (let water run off first) and then continue monitoring with TIC for any new temp rise. Consider any EV with a battery box temp of 150F or more to be in thermal runaway.
 - Mostly effective with Mobility and Consumer devices (construction)
 - Can be scooped with a non-conductive tool (grain shovel) and moved to a safer location (outside), under the protection of a hoseline.
 - Not very effective with EV's (construction)
- Battery cells can become projectiles, starting multi-point fires
- What does various response guides say
- Focus on cooling exposures
- Recent report by NTSB on Cape Corals accident?
- For BEV and BESS, use of manufacturer's procedures. See NFPA list although it is not current, and in many cases the manufacturer has direct resources that are up to date.
- Overview on Victoria Big Battery or other BESS incidents where unit was allowed to burn

Firefighter Safety

- The use of SCBA each and every time even if in an investigation mode
- Roadway safety practices for BEVs and other items
- Tactics on large energy storage systems, and
 - Never go inside a large ESS
 - Smoking BESS presents a high hazard to response crews, depending on location of the units, provide ventilation, cool exposures and contact manufacturer support. Never open a cover on a BESS

Post Incident

- Shock Hazards Associated with stranded energy.
 - Do not breach battery packs, or use tools in overhaul on when the battery compartment is engaged in fire.
- Potential for reignition
 - Towing considerations and locations at towing facilities
- Disposal of damaged batteries
 - Reduce secondary events
 - Mobility devices, to EV what is our community approach. Its more than getting

them outside of a structure.

Public Education

- Track your data, add a means to track when batteries have started or been involved with fire.
- Highlight the importance of public education.
- NFPA Sheets
 - NFPA Lithium Ion Battery Safety, <https://www.nfpa.org/>-
 - NFPA tips on Ebikes <https://www.nfpa.org/News-and->
 - IAFC messaging
- What does the public need to know?
 - Review of some of the most recent incidents around the nation and locally

Aileen Pettinger – Instructor I TtT

Kevin Sehlmeier – Fire Marshall

Jeromy Robertson – Origan Stories-Teaching and Applying Leadership

We commonly take classes to learn leadership and teaching techniques, but all too often these classes are nothing more than a license, certification and or a job requirement.

In “Origin Stories” we explore what makes a leader (teacher, mentor, etc.). We dive into the question, “How do I be this?”. More importantly, we ask “How do I give and teach this?”. Our purpose here is to be the positive and wise memory of an emergency responder as they grow throughout their career. We will listen to what made us who we are, so we can teach and lead our replacements—a good step toward making us whole!

Mark van der Feyst – Training with progress.

This presentation will examine the facts surrounding the two training deaths that took place in Ontario, Canada back in 2010 and 2015 with one firefighter and one college student. The Provincial Inquest conducted in 2017 provided information that all fire departments, instructors, training officers and firefighters can learn from in terms of what not to do for high-risk training. This presentation will focus upon how we as a fire service can progressively train

our membership to be adequately prepared and trained for the high-risk situations that we respond to and find ourselves involved in.

This presentation will be conducted by a PPT presentation using facts from the Inquest. Class discussion will be invited to stimulate critical thinking skills regarding the subject. Still pictures along with video example will be utilized. We will examine the facts surrounding the two

training deaths as a way to show the importance of a proper methodology for training of fire service personnel.