

AEGIS LOSS CONTROL SERVICES
Breakout Session



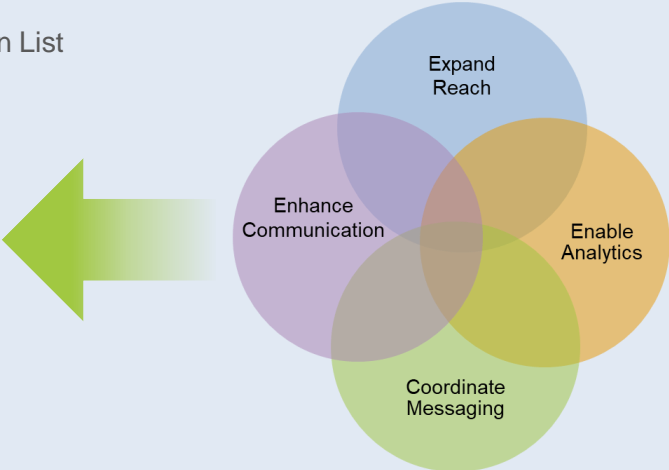

Tim Heinze
Chief Loss Control Officer


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AEGIS LOSS CONTROL
Key Priorities

QR Code for Loss Control Distribution List



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PROPERTY LOSS CONTROL

Josh Fleischer

Vice President, Loss Control Property Operation

Mark Boone

National Machinery Manager, Loss Control Property Operations

AEGIS Insurance Services, Inc.



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LOSS CONTROL PROPERTY OPERATIONS

Agenda

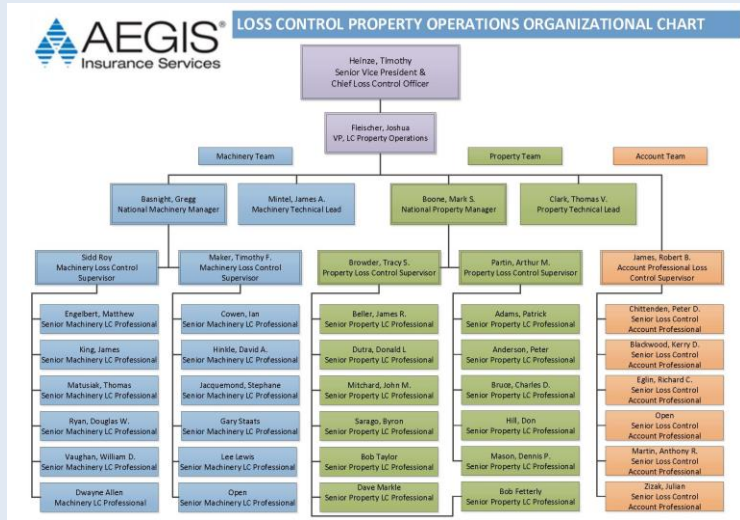
- **Capabilities, Expertise and Staffing**
- **Key industry Issues**
- **Resources**
- **Industry Issue Example:**
Battery Energy Storage Systems (BESS)
Concerns and Support to our Members
- **Questions**



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CAPABILITIES, EXPERTISE AND STAFFING

- Risk Assessments
- Focused Services
- Working Groups
- Consultative Services



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LC PROPERTY OPERATIONS - INITIATIVES

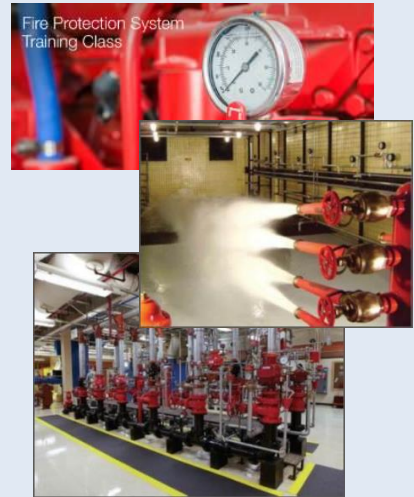
- RADAR Project
- Publications (whitepapers, Quick Tips, etc.)
- Fire Impairment Program
- Fire Protection Training Course (Oct 17-19, 2023)



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PRODUCTS & SERVICES – FIRE PROTECTION TRAINING

- Held annually for the benefit of the Member companies
- Next training will be in October 17-19, 2023
- Training held at Oklahoma State University
- Classroom and hands-on training environment
- Topics include:
 - Power plant hazards review
 - Fire protection design concepts
 - Fire pumps and water supplies
 - Sprinkler systems
 - Detection systems



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PRODUCTS AND SERVICES – ELECTRICAL SAFETY TRAINING

- The Electrical Safety Seminar is based on NFPA 70E, IEEE-C2 NESC, and is designed to provide employers and employees with the information they need to identify and avoid workplace electrical hazards (electric shock, arc flash burns, and arc blast injury) as part of a safe work environment
- There are several course offerings based on the role of an individual, which include either 8, 4, or 2-hour seminars addressing the following topics:
 - Electrical Perils
 - Electrical Safety Program
 - Electrical Safety Qualification & Controls
 - Personal Protective Equipment



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BATTERY ENERGY STORAGE SYSTEMS (BESS)

Mark S. Boone, SR., P.E.
National Property Manager



AEGIS LITHIUM ION BESS WHITE PAPER

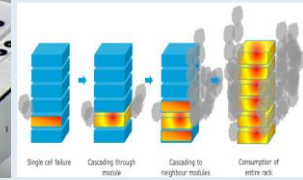
Table of Contents

- 1.0 EXECUTIVE SUMMARY
- 2.0 LI-ION BESS FIRE AND DEFLAGRATION HAZARDS
- 3.0 LI-ION BATTERY CELL CHEMISTRY
- 4.0 LI-ION BESS FIRE TESTING
- 5.0 HAZARD MITIGATION ANALYSIS (HMA, a.k.a. FIRE PROTECTION DESIGN BASIS)
- 6.0 MITIGATING FEATURES & SYSTEMS
 - Battery Management System (BMS)
 - Separation
 - Li-ion BESS Enclosure and Component Construction
 - Emergency Monitoring Systems (Gas, Smoke, other Fire Detection, etc.)
 - Emergency Ventilation Systems
 - Deflagration Venting
 - Fire Suppression/Extinguishing Systems
 - Miscellaneous Loss Prevention
- 7.0 EMERGENCY RESPONSE AND CONTINGENCY PLANNING
 - Emergency Response Planning
 - Contingency Planning
- 8.0 REFERENCES
- 9.0 CONTRIBUTORS



HAZARDS

- Thermal Runaway
- Fire
- Deflagration



While prevention of fire is important, prevention and management of deflagration is paramount.

LI-ION BESS FIRE TESTING

UL 9540A Unit Level Testing Issues



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WHAT WE ARE SEEING

- New project reviews are increasing
- Prototypical
- Lithium Ion remains the dominant technology
- Newer BMS systems are fairly comprehensive and granular
- A few non-LI chemistries
- NDAs

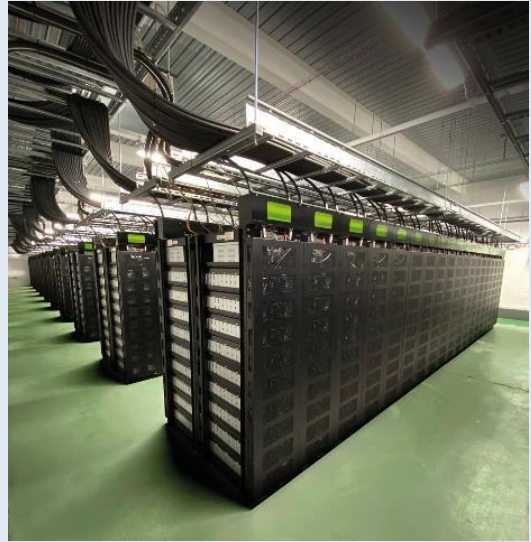


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WHAT WE AREN'T SEEING

- HMAs
- Sound basis for:
 - Deflagration vents
 - Emergency ventilation
 - Separation
- Full scale fire testing



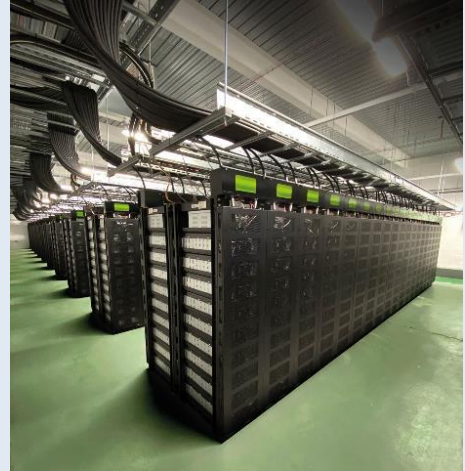
SEPARATION FIRE VS EXPLOSION

How much separation is enough?



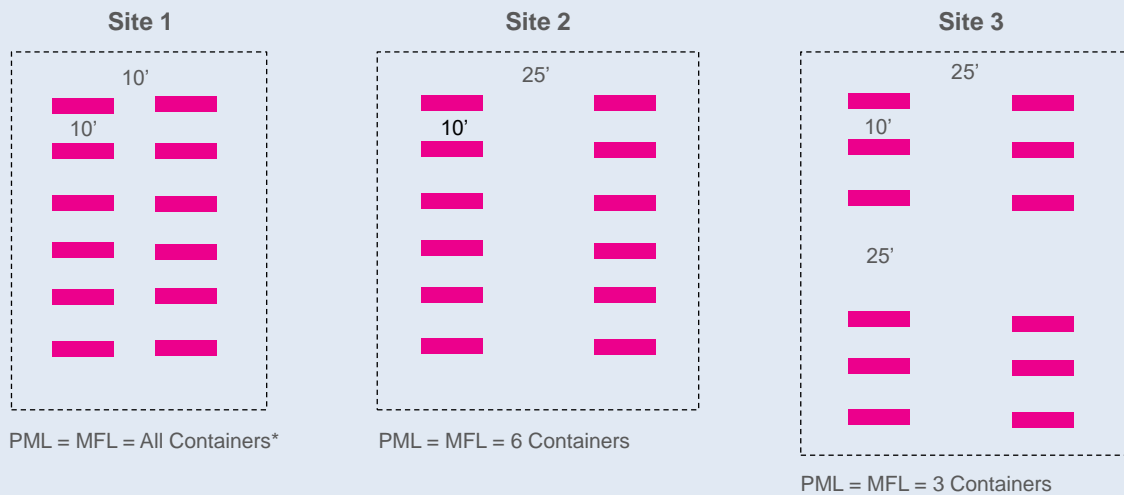
PML / MFL

- PML – Probable Maximum Loss
 - Maximum loss that an insurer would expect to incur on a policy
- MFL – Maximum Foreseeable Loss
 - Worst-case situation – no active mitigation features work
- Property Loss & Business Interruption



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25' SEPARATION



* Unless explosion potential is properly managed and a specific separation distance is validated by fire testing.

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CONCERNS / CHALLENGES

- Almost every site is “prototypical”
- Inadequate HMAs = Incoherent Mitigation Features
- Lack of Full-scale Testing for Mitigation Systems / Separation
- Large Values at Risk – Warehouse Style or Tight Spacing
- Foreign Lab Testing
- NDAs
- LI BESS / UPS in Occupied Buildings
- LI BESS / UPS Exposure to Business-Critical Systems



AEGIS continues to monitor the industry, loss events, and technical papers to provide our best advice to members

LOSS CONTROL PROPERTY OPERATIONS

Summary

- Leaders in the industry in loss control
- We are here to support you in property loss control services
 - Property
 - Machinery
 - Builders' Risk
- Resources are available for you (Consulting, Webinars, Publications, etc.)
- Questions



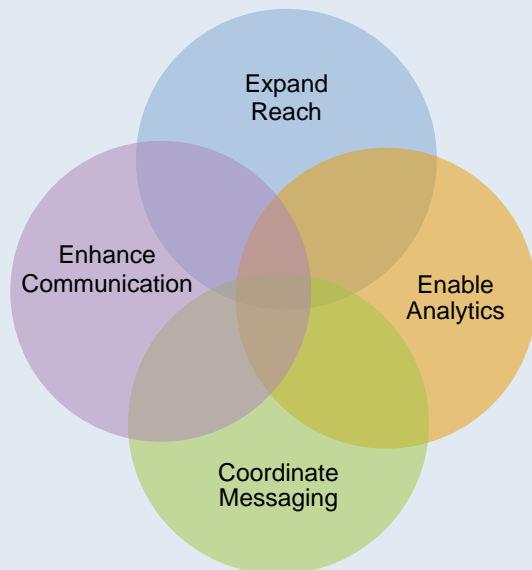
Annie Wong

Senior Electric Utility Professional – Loss Control

AEGIS Insurance Services, Inc.

LOSS CONTROL MISSION/GOALS

Through the implementation of our Loss Control Services, we utilize our collective industry knowledge of utility operations and power generation to support underwriting decisions by outlining and clarifying member exposures, while assisting Member companies in maintaining effective and safe operating systems in order to reduce their overall long-term cost of risk.



LOSS CONTROL DIVISION

Products & Services

- Risk Assessments
- Focused Services
 - Substation Inspection Awareness Training
 - Emergency Call Handling Presentation
 - Public Safety and Awareness Program Review
 - Safety Presentation on Large Losses and Lessons Learned
- Lessons Learned Repository
- Awareness Videos
 - Emergency First Responders
 - HOW SAFE is Your Electric System
- Investigating Electrical Incidents Workshops
 - Comprehensive
 - First Responders
- Electrical Safety Training NFPA-70E
- Webinars



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LOSS CONTROL DIVISION

Focused Service Opportunity

- Safety presentations on large losses and lessons learned
 - Customized safety presentations to utility front line employees
 - Call center employees
 - Electric field operations
 - Natural gas field operations
 - Leverage lessons learned from industry incidents to help utility personnel connect the dots on how their everyday work relates to public safety.



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ELECTRIC CONTACT – LOW HANGING WIRE

Facts

- A pair of porcelain insulators attached to bare copper primary wire on a cross arm dislodged in a storm
- Pole is in an alley behind a residence
- That evening a resident sees the line hanging low and calls the utility
- Service tech responds but sees phone/cable lines low hanging from a pole on the street
- Service tech assumes those are the lines reported to the utility and clears the ticket
- Next morning, a man driving in the alley gets out of his truck and makes contact with the line

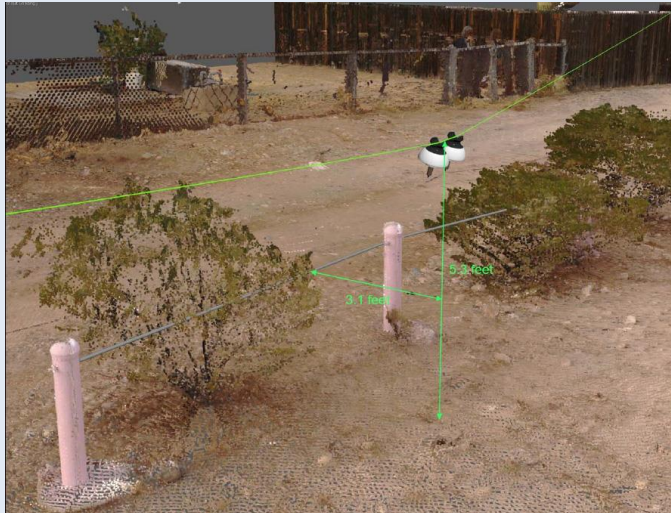
ELECTRIC CONTACT – LOW HANGING WIRE

Observed scene



ELECTRIC CONTACT – LOW HANGING WIRE

Observed condition



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ELECTRIC CONTACT – LOW HANGING WIRE

Consequences

- Man suffered 1st and 2nd degree burns to 85% of his body
- He was in a medically induced coma for more than a month
- As a results of his burns, he could not lift his arms above his head
- Claimed memory problems and cognitive impairment



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ELECTRIC CONTACT – LOW HANGING WIRE

Liability factors

- Wood insulator pins were rotted
- Call center did not ask questions of the resident about the scene and where the wire was located
- Call center representative did not warn the resident to stay away from the line
- Service technician only did visual inspection from his truck
- Contributory negligence – Injured man intentionally grabbed the down line because he was scrapping

ELECTRIC CONTACT – LOW HANGING WIRE

Lessons learned

- Maintenance
- Call center practice and procedure
- Poor field response
- Assuming vs. verifying
- Failing to protect life and property

ELECTRIC CONTACT – FLY FISHING

Facts

- A 15-year-old boy was fly fishing from a kayak when a portion of his pole or line came into contact with an electric conductor extending across the pond.
- The conductor was one phase of a double circuit 69 kV line spanning a private pond. The span was 690 feet long. The clearance at the contact point was 12 feet above the water.
- Timeline
 - 1951 – line was constructed, no pond on the property
 - 1995 – aerial imagery shows a pond on the property
 - 1998 – fiber optic cable added by a third party
 - 2004 – structure on the west side of the pond replaced by insured
 - 2015 – current owners purchased the property
 - 2020 – accident occurred



ELECTRIC CONTACT – FLY FISHING

Damages

- A 15-year-old high school student
 - Honor student, soccer player, avid fly fisherman
 - Suffered 3rd degree burns to approximately 35% TBSA
 - Amputation of right arm above the elbow, and toes on right foot
 - Suffered a "drop foot," significant muscle loss to both calves

ELECTRIC CONTACT – FLY FISHING

Liability & Resolution

- Incident witnessed via FaceTime by his girlfriend
- Notice
 - Lineman at last inspection claims he called engineering, no record of the call
 - Property owner called about moving the line, but quoted cost was prohibitive
 - Line superintendent who inspected this line 6 times in the 10 years preceding told us “line had been low for a long-time and this is keeping him up at night”
- Utility’s linemen responding to the scene all agreed that the line clearly looked too low
- A lawsuit was filed alleging negligence, negligence per se and punitive damages
- Our own expert concluded that the line was out of code
- Fast tracked a mediation, so to limit discovery
- This matter settled at mediation for a confidential amount

ELECTRIC CONTACT – FLY FISHING

Learned Learned

- NESC 214.A states that lines and equipment shall be inspected at such intervals as experience has shown to be necessary. Lines or equipment with recorded conditions or defects that would reasonably be expected to endanger human life or property shall be promptly corrected, disconnected, or isolated.
- The clearance issue should have been discovered during the engineering review for the fiber optic cable attachment and when the insured’s line crew replaced a pole on one side of the span.
- Adequate processes should be in place to manage the property owner inquiry. This includes documentation of the call, the investigation, and resolution of reported field conditions that could affect public safety.
- This incident highlights the importance of public safety and awareness (PSA) programs for schoolchildren and the general public.

LOSS CONTROL SERVICES



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DISCLAIMER

This presentation is advisory in nature and is offered as a resource to be used together with your professional insurance and loss control advisors in maintaining a loss prevention program. It is intended only as an overview and is not intended as a definitive statement of the law in any jurisdiction or a substitute for consultation with your insurance broker, or for legal, engineering or other professional advice of any kind. This presentation is provided without any warranties of any kind and no liability is assumed by reason of the information contained herein.

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