FINAL

The Commission to Advance Lithium-Ion Battery Safety in Maryland; HB468/CH950

Thursday, March 6, 2025 · 10:00am – 12:00pm

Time zone: America/New York

Google Meet joining info

Video call link: https://meet.google.com/cbh-qtbc-ogk

Or dial: (US) +1 513-970-0722 PIN: 152 625 297#

More phone numbers: https://tel.meet/cbh-qtbc-ogk?pin=1123496725696

Commission members attending the meeting in person were marked present as follows: Chairman Emil Nusbaum, Vincent Baker, Michael Cox, Geoffrey Donahue, DeAndre Wilson, and Kitty McIlroy,

Commission members attending the meeting virtually were marked present as follows: Justin Short, Taiwo Alo, David Black, Haley Kotzker, Nicholas Rodricks, Ginny Rogers, and Garrett Fitzgerald.

Absent Commission Members: Robert Whittlesey, Marc Boolish, Ivan Browning, Chris Pilzer, Christopher Neidhart, and Tessa Sanchez,

Members of the public were in attendance.

Staff in attendance: Ken Bush, MSP and Penny Doty, MSP

Presenters: Andy Latham, Salvage Wire and Danielle Spalding, Cirba Solutions and Chair of ReMA Battery Policy Workgroup.

The meeting was called to order by Commission Chairman Emil Nusbaum at 10:05 a.m. Chairman Nusbaum welcomed everyone and provided the attendees with a mission synopsis of the Commission. Chairman Nusbaum reported that the Commission has been tasked by the General Assembly to compile recommendations and suggestions regarding Lithium-Ion Battery Safety in Maryland. As part of that mission, the Commission and Commission Subcommittees are currently exploring/continuing fact-finding work which includes locating and identifying existing standards, and determining challenges and protocol in the industry sector. Once the information gathering process has been completed, the Subcommittees will compile and format the data for further review by the Commission. Focus has been directed to the end of battery life, especially in transportation utilities as well as recycling.

Roll call was completed by the Commission staff. Staff confirmed there was a majority present.

Chairman Nusbaum introduced the first guest speaker/presenter, Andy Latham from Salvage Wire. Presenter Latham's presentation highlights are summarized as follows (PowerPoint presentation slides pdf available for review upon request).

!. High Voltage Awareness – Identify and Assess Vehicle – How to Identify
   A. Circumstances – Flood, fire or accident.

B. Component Location – 1) High Voltage nickel-metal hydride battery, 2) Air supply duct, 3) Power electronics, 4) Hybrid module, and 5) 3.0-Liter V6 compressor engine.
C. Battery Modules – 1) Battery State of Charge Percentage, 2) Battery Block Vol – V01-V14 Value, and 5) Live Data Graph Merge.

2. Vehicle Towing – 1) Always follow manufacturers guidelines, 2) As the drive wheels rotate, they will activate the electric motor, and 3) May require full lift.
3. Safety –
   A. Safety with Batteries – 1) Safety principles, and 2) Hazards and risks.
   B. Many Hazards and risks associated with batteries – 1) Chemical, Electrical, Fire, and Electromagnetic.
   C. Chemical Risks – Battery acid is a chemical and is well known as a dangerous electrolyte, but NiMH batteries contain the equally dangerous potassium hydroxide.
   D. Electrical Risks – 1) Although any battery provides a risk, the higher the voltage, the bigger the risk, 2) There are several different risks, but the most important one is the risk of electric shock, 3) An electric shock occurs when the human body touches a live electrical circuit. 4) When electric shock occurs, the voltage causes a current to flow through the body, 5) The amount of current that flows is determined by the resistance of the body and the size of the voltage, 6) The path through the body also affects the severity of the shock, and 7) The heart is extremely vulnerable to the effects of an electric current.
   E. Electromagnetic Fields – 1) There are large voltages and currents in electric cars, so there will be correspondingly high electromagnetic fields, 2) In electric cars these fields are continuous, but seem to be greatest when the vehicle is speeding up or slowing down, and 3) It is possible that electronic devices, such as pacemakers, could be damaged, but there is no evidence of other risks.
4. Safe Working –
   A. Safety Equipment – 1) Electricians Gloves – Glass O, 1000v Minimum, 2) Rubber Mat or HV Over boots, 3) Safety Rescue Hook, 4) Multimeter – Cat3, 1000v Minimum, 5) Warning signs, Barriers or Cones, and 6) Safety Goggles.
   B. High Voltage Tools – Important to Utilize
   C. Process – 1) Research, Always Follow Manufacturers Guidelines, 2) Vehicle Circumstances – Flood/Fire/Accident, 3) Check Safety Kit and PPE, 4) Walk Around and Place Warning Signs, 5) Dry, well lighted and well ventilated areas, 6) Prepare and utilize PPE, 7) Shut Down Vehicle, 8) Test, Lock Out, Update Signs, and 9) Commence Work on Vehicle.
   D. Research – 1) IDIS – www.idis2.com, 2) NFPA – nfpa.org, 3) Euro Rescue App, 4) Pro-Assist Hybrid App, and 5) Vehicle Manufacturer.
   E. Vehicle Shut Down and Battery Removal – 1) Fully Trained and Competent Technicians, 2) Manufacture Process, and 3) Use Correct Tools and PPE.
   F. Vehicle Shut Down Specifics – 1) Always follow manufacturers process, 2) Ensure vehicle is switched off, 3) Remove key and lock out, 4) Disconnect 12v Battery, Remove HV link and leave vehicle for 10 minutes to allow capacitors to discharge, 5) Test w/ Multimeter to confirm shut down, and 6) Mark vehicle to show it is safe.
5. Battery Storage – 1) Store by Battery type, 2) Keep them Dry, 3) Restrict Access, 4) Do Not Crush or Puncture, 5) Do Not Discharge Battery, 6) Avoid High Temperatures, and 7) Store and recycle according to legislation and regulations in the country you are operating, and 8) Batteries are special waste and subject to mandatory recycling requirements.

6. Battery Storage – More than Just a High Volage Battery – 1) All batteries must be recycled, 2) In some countries this is legislated, and 3) Leaving any battery in the vehicle increases fire risk.
7. DDR Batteries – 1) Treat with extreme care, 2) Storage considerations, 3) Shipping is very different, and 4) May require specialist training, packaging and transportation.
8. First Aid!
   A. Causes of Battery Fires – 1) Mechanical Damage, 2) External Thermal Stress, 3) External Short Circuit, 4) Internal Short Circuit, 5) Incorrect Handling, 6) Overcharging, and 7) Deep Discharging.
   B. Fire Solutions – Vehicle Fire Blanket – 1) Fast, 2) Effective, 3) Simple, 4) Eco-Friendly, and 5) Re-usable.
   C. Resources – 1) UDIS, 2) NFPA, 3) ARA, 4) eComply, 5)Salvage Wire, 6) Charg- Ed, 7) EV Fire Sale, 8) Energy Security Agency, 9) ELV Solutions, 9) Rescue Sheets, 10) Tesla, and 11) Apps – Pro-Assist Hybrid and Euro Rescue.
9. Books – Info Out There
10. Additional Training – 1) Accredited Training, 2) On-Line and Face-to-Face, 3) All levels from entry to senior, 4) Electric and Hybrid as well as depollution.
11. Test and Feedback – andy@salvagewire.com – http://salvagewire.com.

The Presenter from Salvage Wire entertained questions and his responses to those questions are summarized as follows:

1. Pre-warning Systems alerting the vehicle operator of a damaged battery are manufacturer specific with some providing the safety measure and others not so much. In the event of an incident or accident whereby the airbags deploy, the high voltage system should shut down. Additionally, if one of the battery cables sustains damage, then the high voltage system should shut down. However, if the case is punctured, the safety measure of the high voltage system shutting down may not always occur, depending on the manufacturer.
2. Fireman's Ports – Renault in France announced this week that they are mandating the placement of a fireman's port on all new batteries. This enables the fire service to direct water at the internal area of the battery to assist in extinguishing fire.
3. Sealed batteries vs. non-sealed – The basic rule of thumb in determining if a battery is sealed or not sealed is to assume it is not sealed if located inside the vehicle. If the battery is located on the outside the vehicle (i.e., underneath), then it is most likely sealed.
4. Emergency Responders Discharging Potentially Damaged Batteries – Not recommended as the battery could be discharged too far making it potentially unstable. It is recommended by manufacturers that at 50 foot exclusion zone be placed for separation from other vehicles and/or structures in a compound yard.
5. Vehicle Plug-In Devices – These devices make the vehicle immobile, but may not shut it down. The results depend of the manufactures which vary.
6. Battery State of Health Assessments – Assessments are extremely important whether they occur in the auction yard, car dealership lot, impound yard, recycling facility, etc. Assessments include visual inspections gauging the state of the battery, dynamic risk assessment, scan tool plugging, and OBD port data retrieval.
7. Global battery standardization in the industry is greatly needed as there is too much product variation between manufacturers.

Chairman Nusbaum introduced the next Presenter/Speaker, Danielle Spalding, Cirba Solutions and Chair of ReMA Battery Policy Workgroup. The speakers' presentation is summarized as follows (PowerPoint presentation slides pdf available for review upon request):

1. Shifting the Paradigm –
   A. Cirba Solutions Operation Facilities: 1) Trail, BC; Brea, CA; Mesa, AZ; Wixcom, MI; Baltimore OH; Lancaster, OH; Columbia, SC
   B. Cirba Solutions Office Facilities: 1) Indianapolis, IN, 2) Charlotte, NC
2. Overview – 1) Founded in 1991 (30 plus years of experience), 2) Headquartered in Charlotte, NC, 3) Six Strategically located facilities, 4) Handles all battery formats and chemistries – Specialize in DDR, 5) Feedstock EOL batteries, EV batteries, production scrap, portable electronics, post-consumer, energy storage systems, healthcare and more, 6) Shredding and Hydrometallurgy processing approach, and 7) Return Critical Minerals (Li, Ni, Co, Mn) back into the Domestic Battery Chain.
3. Battery Recycling Leader – Comprehensive Solution for the Battery Supply Chain – The most advanced battery management solution in the industry that enables a true closed loop supply chain. There are multi-battery waste streams, and they need high-tech services. Cirba Solutions proven ability to provide a comprehensive solution is an advantage in ensuring batteries are responsibly recycled.
4. Driving Battery Recycling – Higher standards, lower emissions. It is how we look out for each other, and the planet.
   A. Like Certainty? So do we – 1) Hazmat transport certified drivers are trained to handle battery loads: LTL or FTL, 2) Coast-to-coast coverage, 3) Specialized fleet focused on battery safety, 4) Reliable pickups, 5) Tracking and transparency of orders, 6) Packaging solutions, and 7) Flexible loading options.
5. End-to-End Approach to Battery Recycling – Processing to a core and proven capability of Cirba Solutions, and our demonstrated technologies allow us flexibility and adaptability to meet changing market needs. This approach enables a closed loop supply of critical battery materials.
6. Sustainable Content & Expanded Access to Critical Materials – 1) Black Mass Processing Expansion of 600%, 2) Hydrometallurgy Processing for Battery-Grade Metal Sulfates, 3) 300 plus new clean energy jobs in Ohio and South Carolina, 4) More than 2 billion in investment, and 5) Lancaster, OH expansion and Columbia, SC facilities combined will provided enough battery grade salts for more than 70K EV batteries annually.
7. Thirty (30) Years of Industry Leading Compliance & Safety – The Market demands compliance and safety, even more so now with evolution of battery technology – this is what we do.
   A. Robust protocols in personal safety, handling, packaging, transport and more.
   B. Certifications focus on recycling
   C. Training Programs for staff on safety and environmental impact.
   D. Transparent reporting to customers.
   E. Industry partner in education
8. Scaling to Meet Demand –
   A. Recycling Education
   B. Continuous Focus on Safety & Compliance
   C. Building Out Battery Recycling Manufacturing Ecosystem
   D. Continue to Expand Leading Revers Logistics
   E. Expand Critical Mineral Production

9. ReMA Position on Non-Embedded Small & Medium Format End-of-Life Battery Management
    A. Consumer Education and Outreach must be prioritized to ensure public safety, responsible recycling, and ongoing community engagement.
    B. Funding paid for by the producers of the battery or battery containing product, covering collection, transportation, processing, and public education, as well as an infrastructure assessment to guide safety and detection investments.
    C. Battery Stewardship Organizations (BSOs) should operate in coordination and with state oversight to arrange for the collection and recycling of battery formats they represent.
10. Non-Embedded Small & Medium Format End-of-Life Battery Management
    A. Independent Collection and Management of Batteries by Recyclers should not be restricted if collection is recorded and reported, and batteries are responsibly managed to the law.
    B. Covered Battery Formats have different requirements for safe and responsible collection, packaging, transport, and processing that should be accounted for, and collectors should not be required to handle formats they are not properly trained and equipped to handle.
    C. State Oversight in coordination with a stakeholder Advisory Committee should ensure against flow control and market access imbalances and ensure confidential and secure data reporting to the state or a third party, non-vested entity.
11. Non-Embedded Small & Medium Format End-of-Life Battery
    A. Design for recycling must be encouraged for battery manufactures and producers so that batteries can be safely used by consumers and reused, repurposed, or recycled at end of life.
    B. Civil Actions and Penalties for Improper Disposal should be included for grossly negligent or knowing actions by commercial entities, and BSOs should provide collection from recyclers receiving batteries they cannot accept.
12. The Future is Electrified
    A. The Future is Electrified
    B. Our standards set us apart.
    C. Our services & technologies move you forward.
    D. Real experience and proven results.

Presenter Danielle Spalding opened the floor to questions or comments regarding her presentation. Commissioner Nusbaum thanked the presenter for her informative and detailed presentation. Presenter Spalding's responses to questions posed by attendees are found below:

1. Embedded Batteries (i.e., smoke alarms, vape pens, etc.) – Cirba is anticipating a report from a multi-state embedded battery assessment task group and ReMA for positions and recommendations. Certifications and permits of the recycling facilities will be dictated by the report as well as the amount of recyclable material vs. waste from products. Member McIlroy mentioned the effort currently going on in Maryland with embedded battery electronics and Bill hearings. Proposals include funding for heat and fire detection equipment, devices, etc. for the collection sites with the goal of providing a permanent funding source for collectors and recyclers of battery vetted electronics.
2. Packaging for Recycling – Cirba Solutions provides their own packaging solutions for both standard as well as damaged/defective products. The packaging solutions vary depending on the format size as there are different requirements for transport and permitting to ensure thermal

management. Cirba's focus is to help recycle and encourage the entire closed loop effort which includes traceability and returnability for reuse. The effort also includes damaged materials.

The Subcommittee Leaders provided the Commission with updates and plans for future meetings. The Subcommittee Leaders announced they are pushing ahead to end the information gathering process and start compiling recommendations for the Commission to review. At this time, Subcommittee Members are being tasked with completing focus/framework lists and spreadsheets that are being pushed out by the Subcommittee Leaders which will be used as a basis tool for the proposed legislative report recommendations.

Commissioner Ken Bush provided the Commission with an update regarding the State's adoption of the 2024 version of NFPA 1 Fire Code and NFPA 101 Safety Code for which both of the NFPA Codes reference the most current 2023 NFPA 855 Codes. Commissioner Bush reported the public comment period closes on March 10, 2025. The posted comments will be published in the Maryland Register so if anyone has any comments about the adoption of the updated codes, they need to post a written comment, which will be published in the Maryland Register. A public hearing before the Maryland State Fire Prevention Commission is scheduled for March 31, 2025 at 10;00 at the Laurel City Council Chambers. Verbal comments will be accepted at the hearing, but written comments have to be posted by the March 10, 2025 deadline.

The Commission will continue to identify and invite focus groups/guest speakers to present at future Commission meetings. The Commission also discussed various upcoming/future demonstrations related to the Commission's topics of interest. More information will be provided at a later date.

The next in person Commission meeting was scheduled for Thursday, April 10, 2025 at 10:00 a.m. at MFRI in Classroom I.

Chairman Nusbaum asked the Commission to review and approve the submitted Minutes from the February 6, 2025 meeting. The Minutes as submitted were approved by the Commission with no objections raised.

Chair Emil Nusbaum asked if there was any additional business the group members wished to address, and upon hearing none, the meeting was adjourned at 12:05 p.m.

These meeting minutes are respectfully submitted by Penny L. Doty.