AFSL American Fireworks Standards Laboratory

AFSL
General Membership Meeting

September 23, 2021

Hyatt Regency Riverwalk
San Antonio, Texas

Agenda

- Board of Director's Report – Tad Trout, Treasurer
- Election of Directors – Jay Howell, Executive Director
- Financial Report – Tad Trout, Treasurer
- Award Presentations – Tad Trout, Treasurer
- Consumer Fireworks Testing Program – Jay Howell, Executive Director
- Domestic Testing and Injury Surveillance Activities – Jerry Wingard, Project Manager
- 15-minute BREAK
- BV Testing Program Update – Chuck Rogers, BV
- Current Failure Trends in Consumer Fireworks – Chuck Rogers, BV
- What the Last 25 Years Tell Us About What Lies Ahead – Jay Howell, Executive Director
- Election Results – Jay Howell, Executive Director
- Closing Remarks – Tad Trout, Treasurer

Board of Directors’ Report

Tad Trout - Treasurer

Election of Directors

Jay Howell – Executive Director

2021 Candidates for AFSL Board of Directors

- Consumer Fireworks Importer, Distributor, Retailer Category
  - Vince Bellino – Bellino Fireworks, Inc.
  - Mike Ingram – Fireworks Over America
  - Steve Irvin – North Central Industries
- Consumer Fireworks Shipper Category
  - John Mo – Brothers Pyrotechnics, Inc.

Financial Report

Tad Trout - Treasurer

Distinguished Service Awards

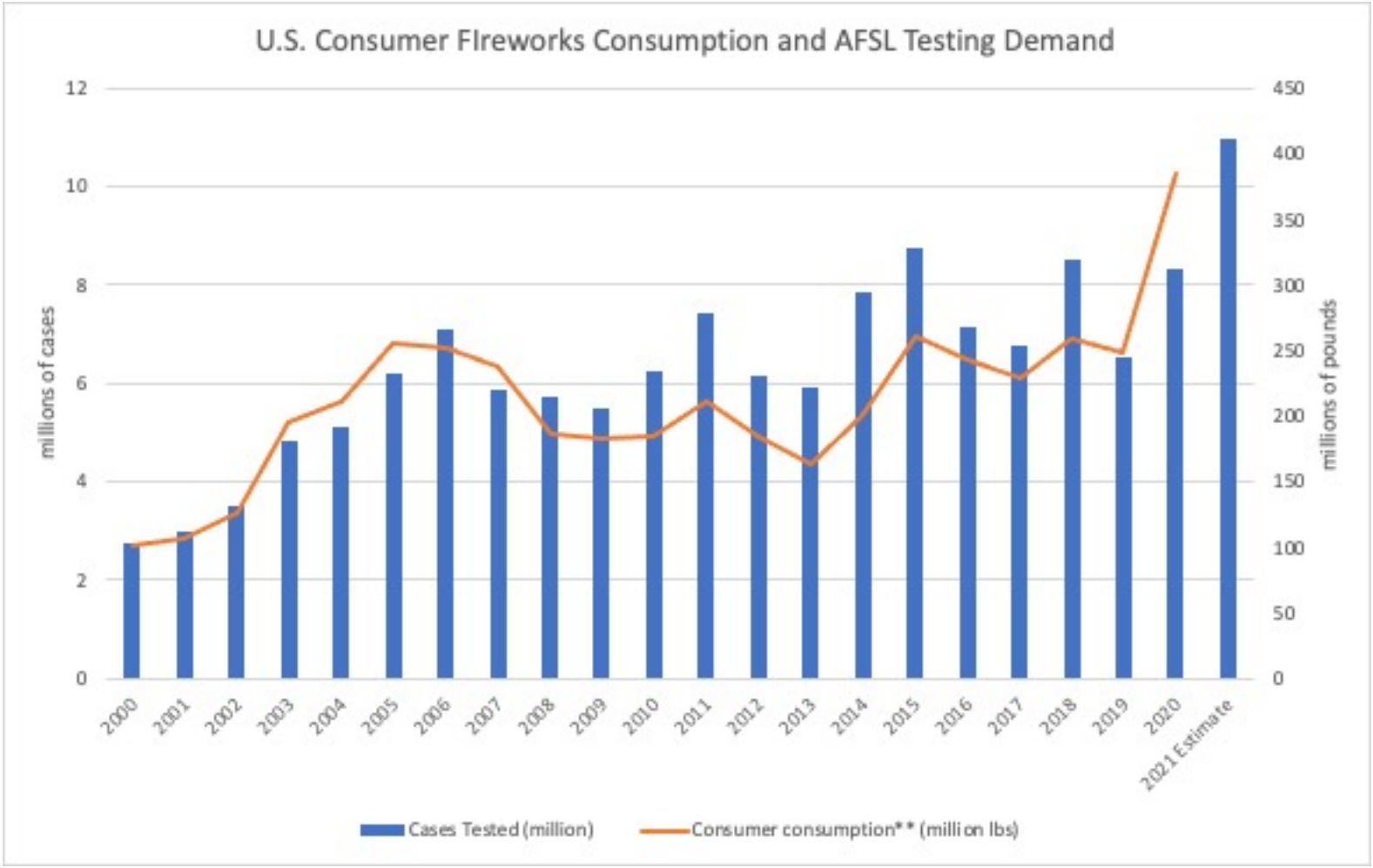
Tad Trout - Treasurer

Consumer Fireworks Testing Program

Jay Howell – Executive Director

Key Observations

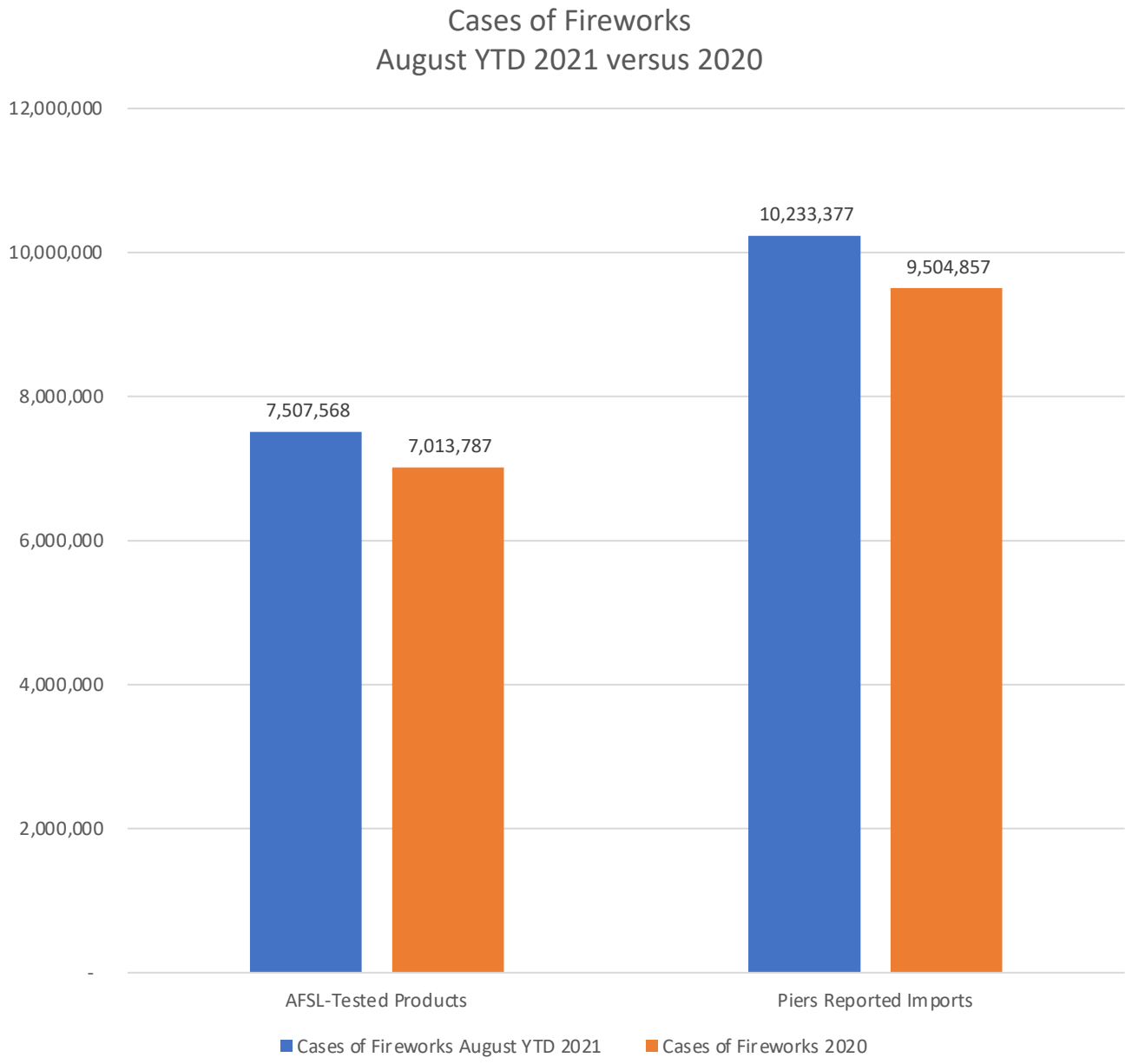
- Year over year testing activity is up 80%, January through August, sitting at 7.5M with 4 months remaining in the year.
  - AFSL tested 4.2M cases during the same period in 2020.
- Over 2M tested in April – new record
- AFSL staff estimates for 2021 full-year testing volume range from 9M to 14M, with consensus coming in at 11M.



**source: APA U.S. Fireworks Consumption Figures 2000 - 2020

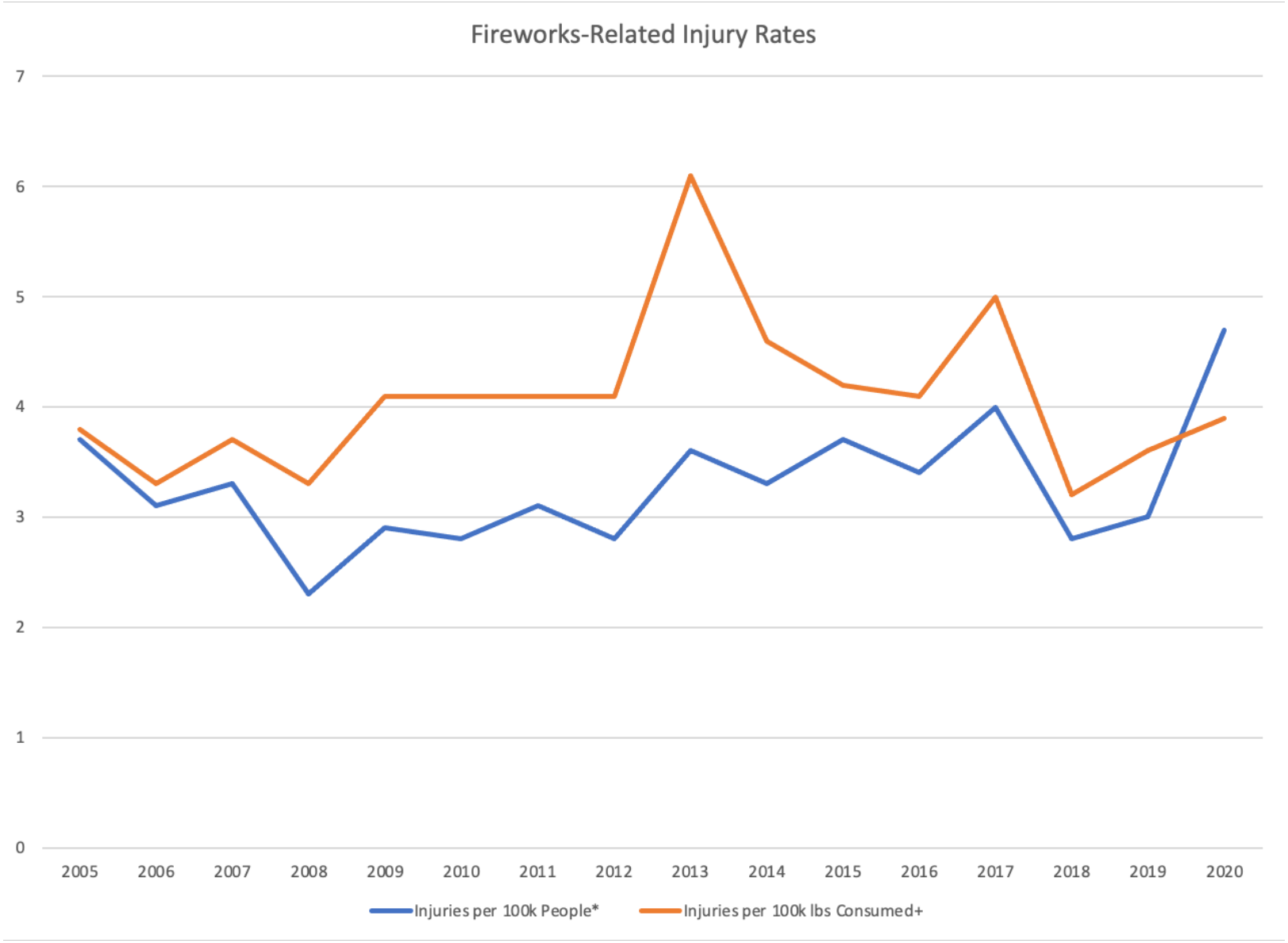
Key Observations

- August YTD 2021 AFSL-tested cases are running about 73% of Piers reported volume.
  - In 2020, the percentage was about 74%
  - The gap between Piers-reported volume and AFSL volume is currently about 2.7M



Key Observations

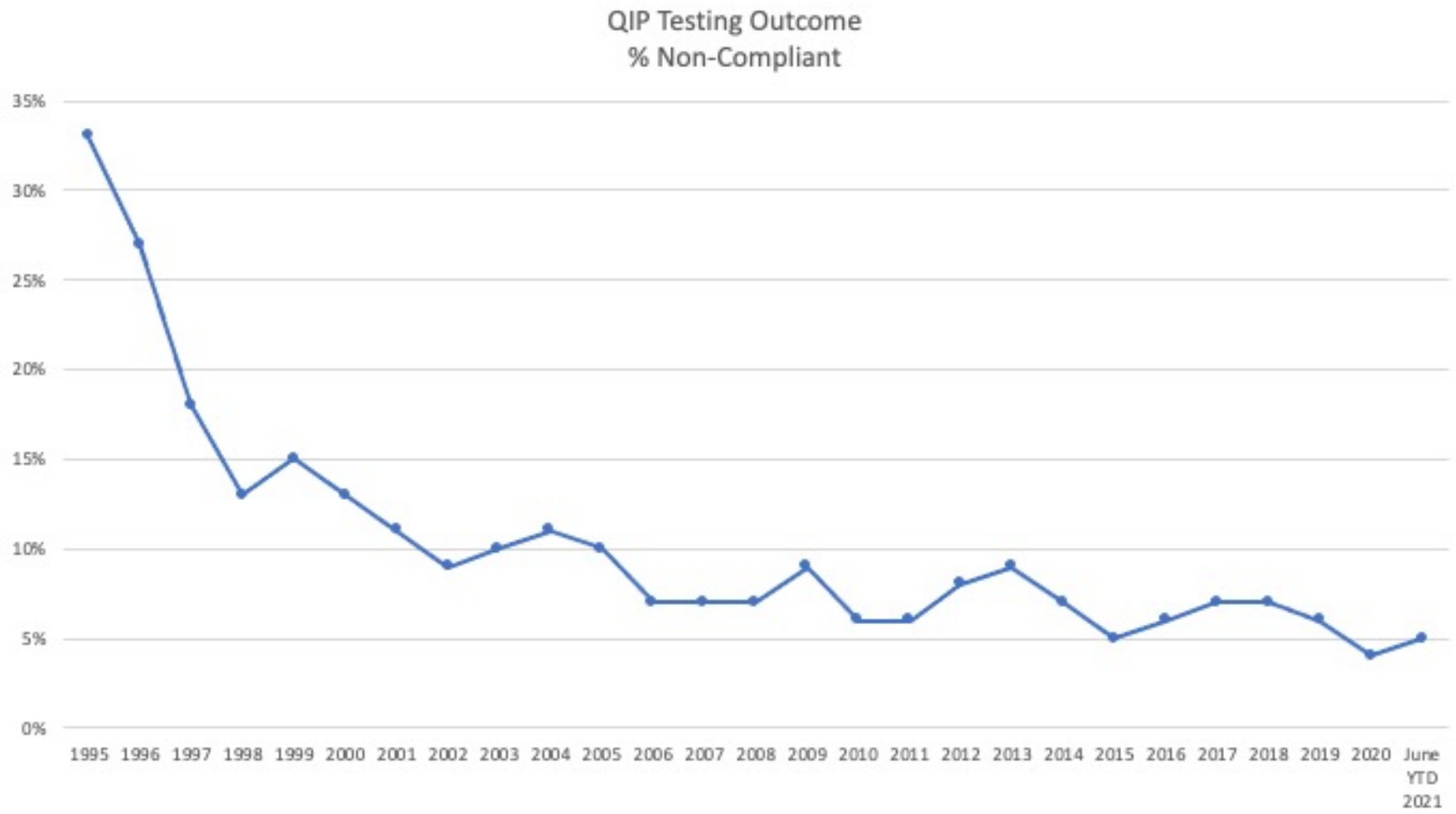
- Despite improvements in compliance rates, injury rates are trending upwards from CPSC perspective.
- CPSC staff note that the cessation of public fireworks displays in 2020 may have contributed to as much as a 50% increase in fireworks injuries.
- Need to bend the curve downwards.



Sources:
*CPSC 2020 Fireworks Annual Report, *Fireworks-Related Deaths, Emergency Department-Treated Injuries, and Enforcement Activities During 2020;* June 2021
+APA *Fireworks-Related Injury Rates, 1976-2020*

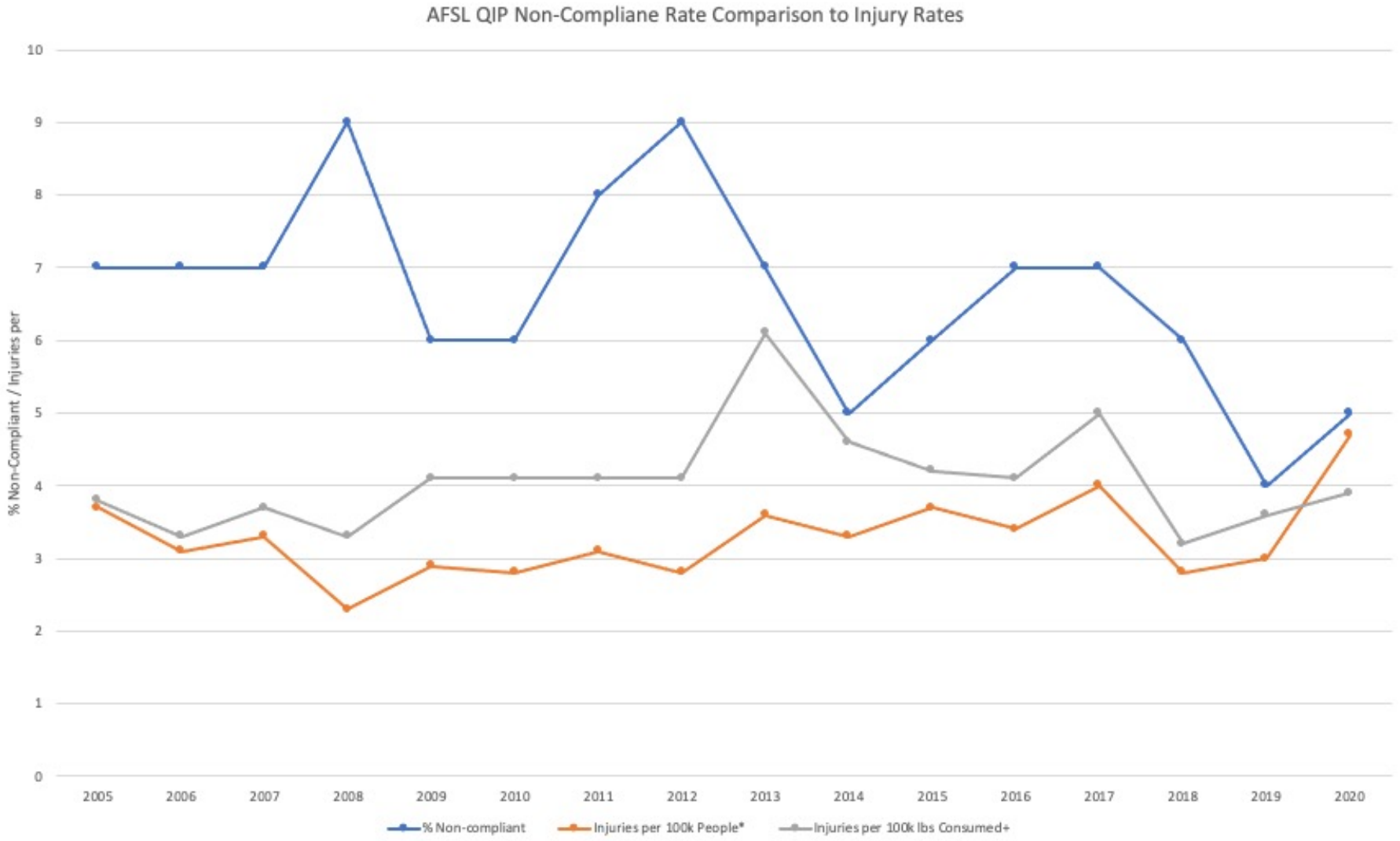
Key Observations

- Overall trending is favorable but appears to be having little impact on injury rates.
- A review of sampling plan will be conducted to determine if a risk-based approach could yield reductions in injury rate without significantly impacting costs.



Key Observations

- Overall trending in non-compliance rate is not driving similar changes injury rates.
- Changes in user behavior likely key to significant changes in injury rates.



Domestic Testing and Injury Surveillance Activities

- Jerry Wingard – Project Manager
  - Domestic Testing
  - 2021 Fireworks-Related Incidents Investigations

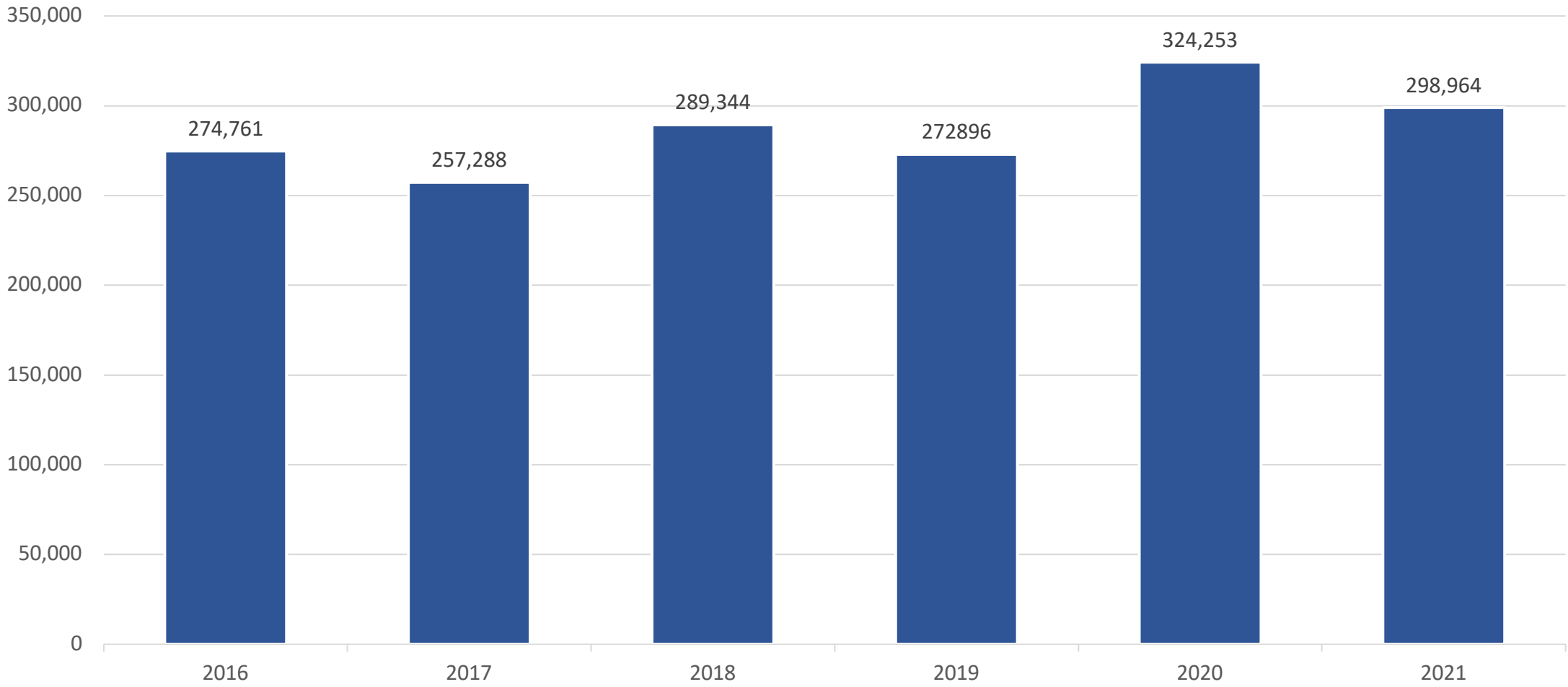
AFSL Domestic Program Activities
Member Visits

- Three new AFSL members were contacted about scheduling meetings to assist them with AFSL, CPSC and DOT requirements.
  - All three have been visited and instructed on AFSL Procedures and Federal requirements.
- Since this past season three new members have joined AFSL.
  - All three have been contacted and in the process of setting up visits;
- No Members have identified issues with AFSL certified items and requested retesting.
- No Members have requested to be reaudited.
- Since PHMSA has new requirements on EX and FC markings on items we may ask members to allow a voluntary random visits to look at new items being shipped.

AFSL Domestic Program Activities

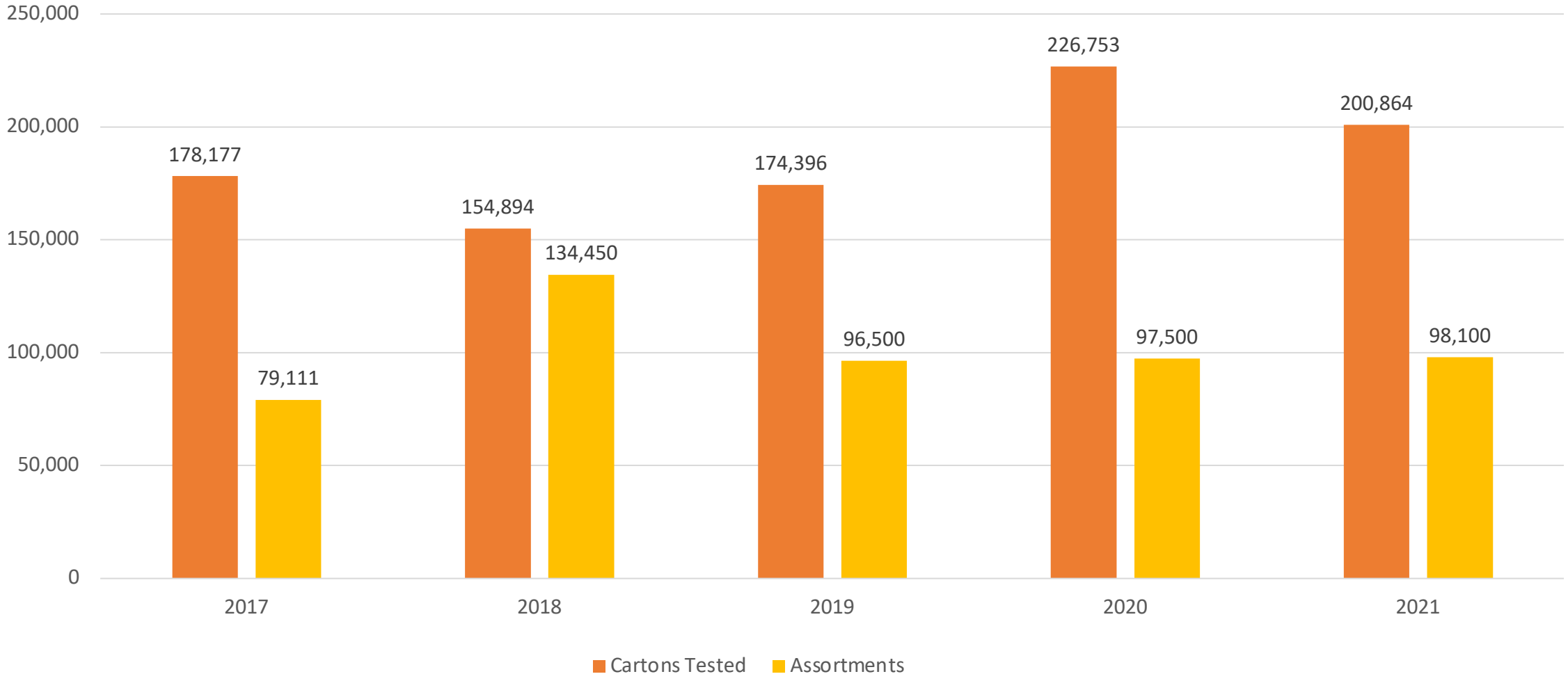
- We continue to work with BV and the AFSL China Team in streamlining and establishing a better line of communication to ensure we are promptly addressing issues that are found during the factory audits.
- We work with U.S. companies, testing and certifying domestically manufactured consumer fireworks and answering questions from companies about domestic manufacturing of fireworks.
- We performed domestic testing, safely and promptly, on imported fireworks and domestically manufactured or remanufactured fireworks. This also includes the AFSL testing program in Mexico.
- We review relevant communications between U.S. AFSL members and BV requesting certification of domestically assembled fireworks and assortments and manage other testing and certification issues as they occur.

Domestic Testing and Certification Program
6-Year Summary



1.7 million domestic cartons certified and approved

CARTONS AND ASSORTMENTS CERTIFIED THRU DOMESTIC PROGRAM ANNUAL BREAKDOWN



Domestic Program Activities
2021 Fireworks Investigations

- During 2021, AFSL investigated 17 fatalities and 42 injuries reportedly related to fireworks.
  - Because of travel issues we have only traveled to eight locations.
  - Others have been handled by phone and internet.
  - Several agencies have provided limited information.
- Following is a summary of the seventeen fatalities and forty-two injuries that were investigated.

YTD 2021 Fireworks-Related Fatalities

- 17 reported fatalities
  - 10 – Consumer fireworks
  - 3 – Homemade and illegal fireworks
  - 3 – Fires possibly caused by residual burn
  - 1 – Involved a 6” display shell
- Reported Trauma
  - Blunt force trauma to head, hands, chest, abdomen, heart, and lungs

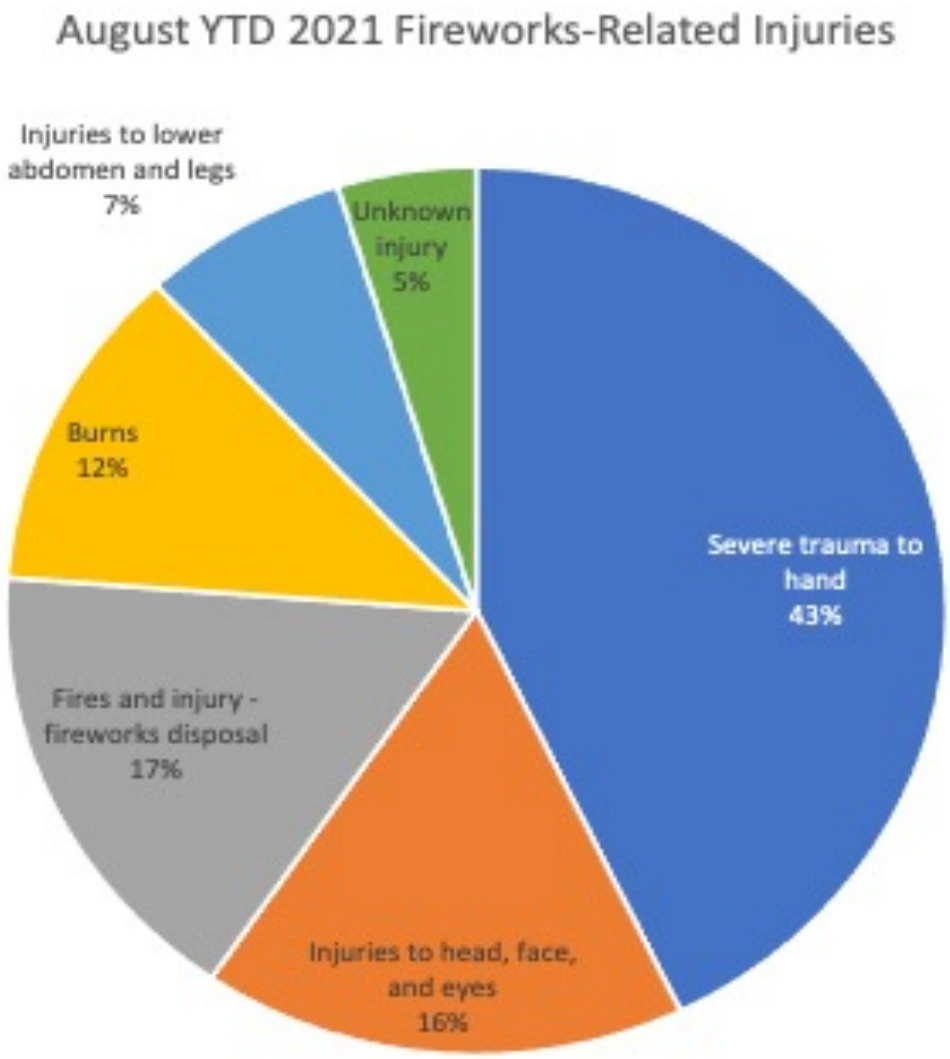
- Consumer Fireworks-Related Fatalities
  - Five reloadable tube aerial shells - shell size unknown
  - Two reloadable tube aerial canister shells – shell size 5 inches in length
  - One reloadable tube aerial canister shell – shell size 6 inches in length
  - One was a 3x9 mine and shell
  - One was a stick rocket
- One of the devices was manufactured by an AFSL Company
- Two were not tested by AFSL
- One had not been tested by AFSL since 2016 but has a member’s logo on the device
- Others are unknown currently

Observation

- AFSL has historically adopted new tests, such as the upside-down test, to help mitigate the risk of fireworks-related injuries.
  - There may be a need to conduct an evaluation of recoil forces and their potential impact on tube and base integrity when the base is not placed on a hard flat level surface.
- Three of this year's fatalities were related to fires possibly caused by residual burn, and five other accidents were fire related.
  - We also saw an increase in residual burn failures at state-level testing.
  - We intend to review our residual burn / thermal fail requirements and testing procedures to better identify product subject to these types of failures.

42 Fireworks-Related Injuries Investigated

- 18 – Severe trauma to hands; loss of hands and/or fingers
- 7 – Trauma to head, face, and eyes
- 7 – Fires and injuries related to fireworks disposal
- 5 – Burns
- 3 – Trauma to abdomen and legs
- 2 – unknown or unidentified

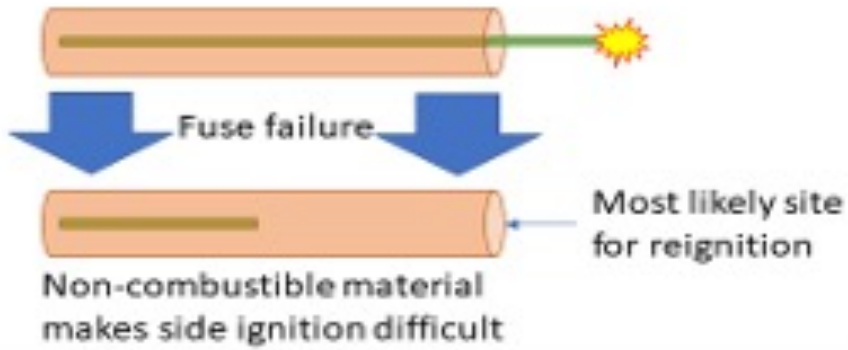


Hand Injuries

- A Task Group was formed to investigate the possible cause of fireworks-related hand injuries and develop possible approaches to mitigate the risk of these types of injuries.
  - Current members – Jerry Wingard, Chris Musto, Graham Walsh, and Jay Howell

- The Task Group has begun generating some ideas to help mitigate the risk and will review these proposals with the Standards Committee and the Board.

Non-Combustible Fusing Overwrap



Technical Approach

- Overwrap fuse with non-combustible material
- If fuse burns out within overwrap, actual fuse not visible
- If reignition is attempted
  - Wrong location (end of overwrap)
  - Side ignition impractical due to overwrap material

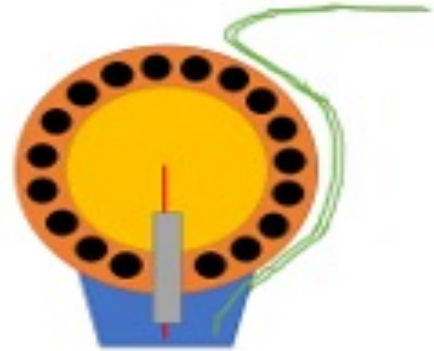
Required Steps

- Identify suitable overwrap material
- Build up fuse samples
- Determine side ignition time / feasibility

Pros / Cons

- Cost unknown (-)
- Redesign effort unknown (-)
- Makes reignition difficult (+)

Redundant Fusing



Technical Approach

- Add redundant fuse leading to lift charge
- If one fuse fails to burn to lift, the other may continue

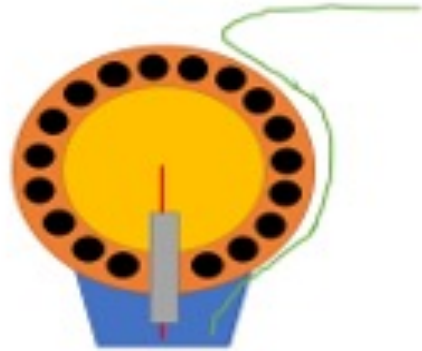
Required Steps

- Build charges with redundant fusing
- Run comparative study to evaluate reduction in misfires

Pros / Cons

- Requires minimal redesign (+)
- Does not address intentional misuse (light in hand with intention to throw) (-)

Fuse On Outside of Casing



Technical Approach

- Run fuse on outside of shell so it burns hand of person holding shell

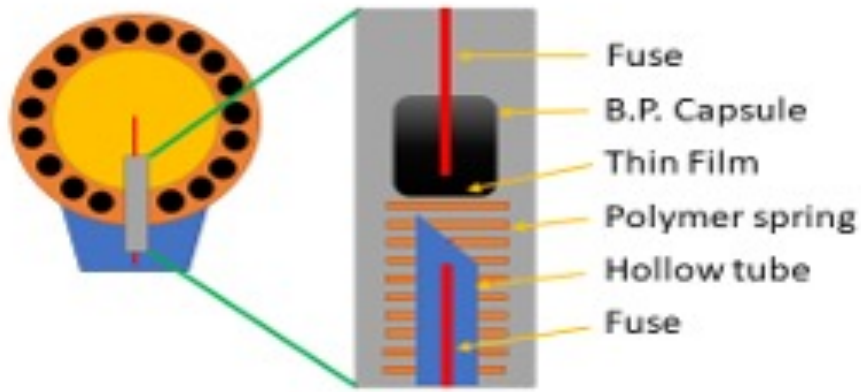
Required Steps

- Redesign shell to run fuse on outside

Pros / Cons

- Simple redesign (+)
- Fuse is currently inside wrap to maintain orientation (-)

Setback Arming



Technical Approach

- Use upward acceleration to close gap in fuse
- Hollow tube pierces thin film, allows fuse to light black powder in capsule
- Lights fuse to burst charge

Required Steps

- Break charge must have enough inertia to compress spring
  - Measure acceleration thru lift
- Film must withstand blast from lift charge

Pros / Cons

- Requires substantial redesign (-)
- Increased complexity (-)
- Prevents article burst from functioning without lift acceleration (+)

Return Credit

Technical Approach

- Customers can return fireworks that did not function
- Disincentivizes trying to relight fuse

Required Steps

- Set up fund and process to return fireworks which did not function

Pros / Cons

- Reduces customers trying to reignite fireworks (+)
- Requires no redesign (+)
- May not incentivize customers in the moment (-)
- Doesn't work in states where fireworks are illegal (-)
- Some states have narrow window for fireworks stands to be open (-)

BREAK

THE MEETING WILL RESUME IN 15 MINUTES.

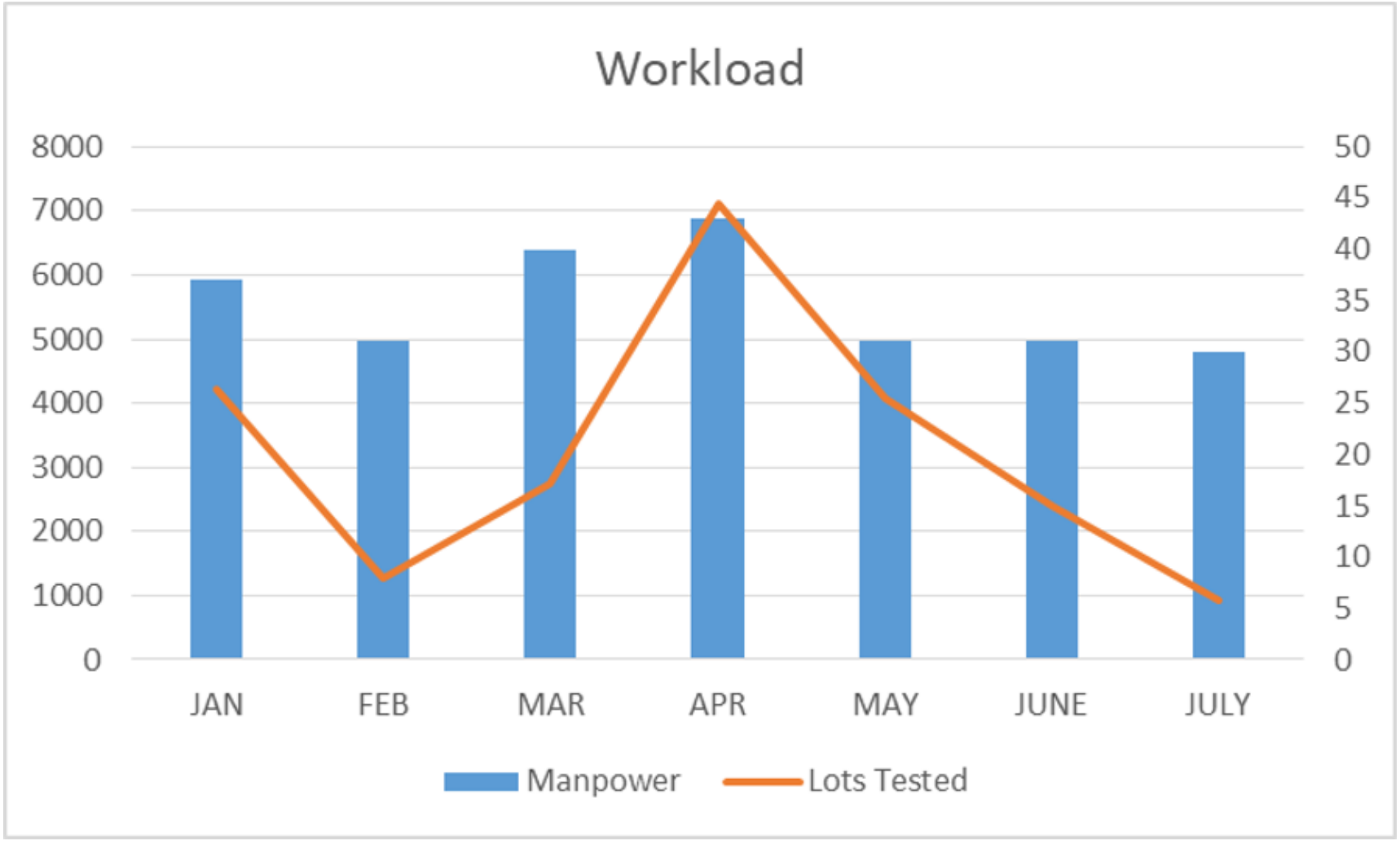
All ballots must be submitted to Jieli before break ends.

BV Testing Program Update

- Chuck Rogers – BV Americas Director, Technical Consulting & Supply Chain Solutions
  - Testing Volume, Staffing, and Covid Contingencies
  - Current Failure Trends in Consumer Fireworks

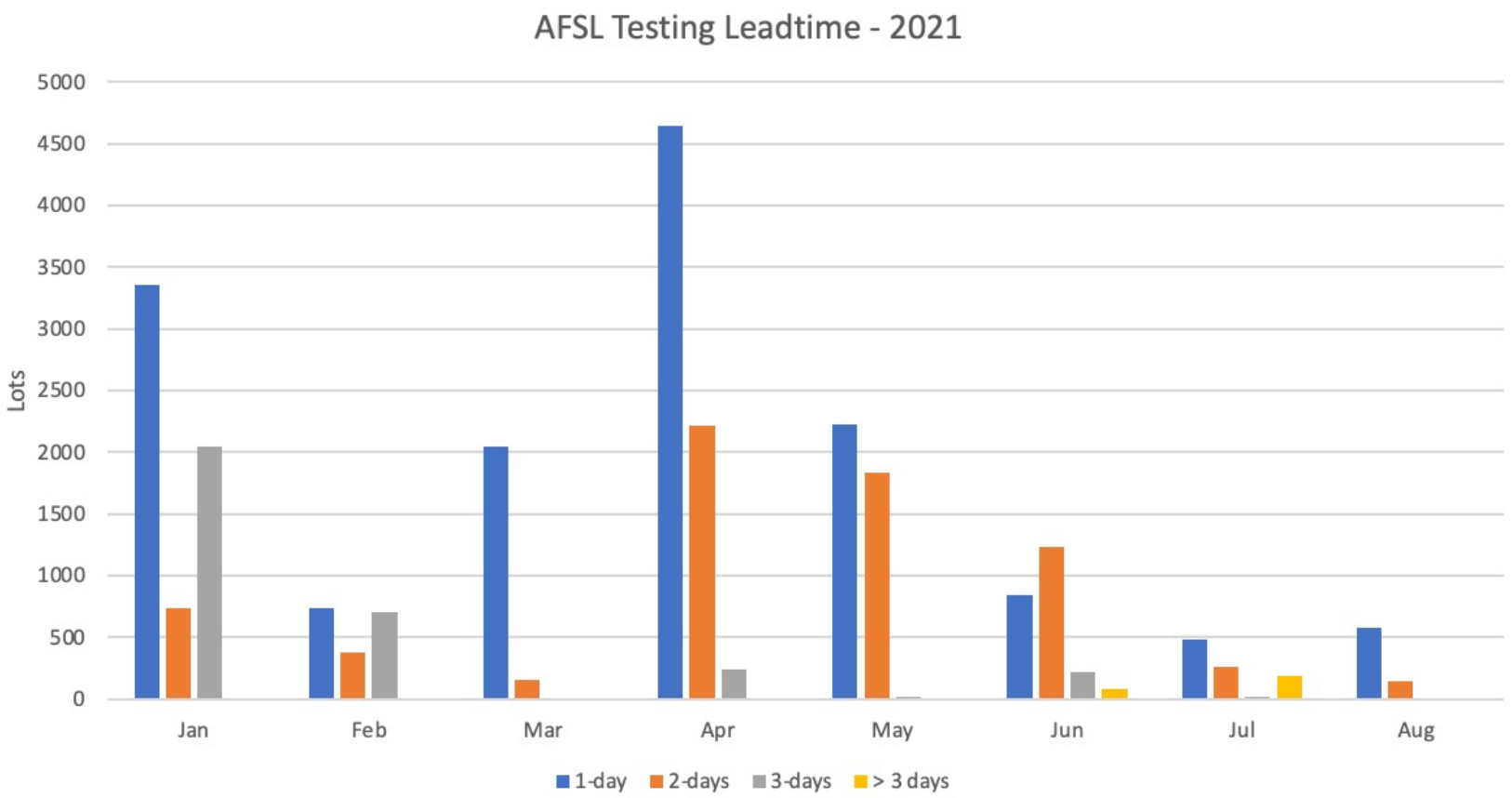
Key Observations

- Reallocation of resources from other areas of BV's business has allowed us to adjust resources to match the fluctuations in demand.
- All personnel directly involved in the testing of fireworks have received AFSL/BV training.
- Monitoring Covid situation closely
  - Reducing face-to-face meetings
  - Teams located at remote locations, as needed, to mitigate impact of local restrictions



Key Observations

- 86% tested within 48 hours - August YTD
- Despite record-setting volume in April, 96% of the volume was tested within 48 hours.
- Effective use of our resources allows us to meet service commitments to our members.

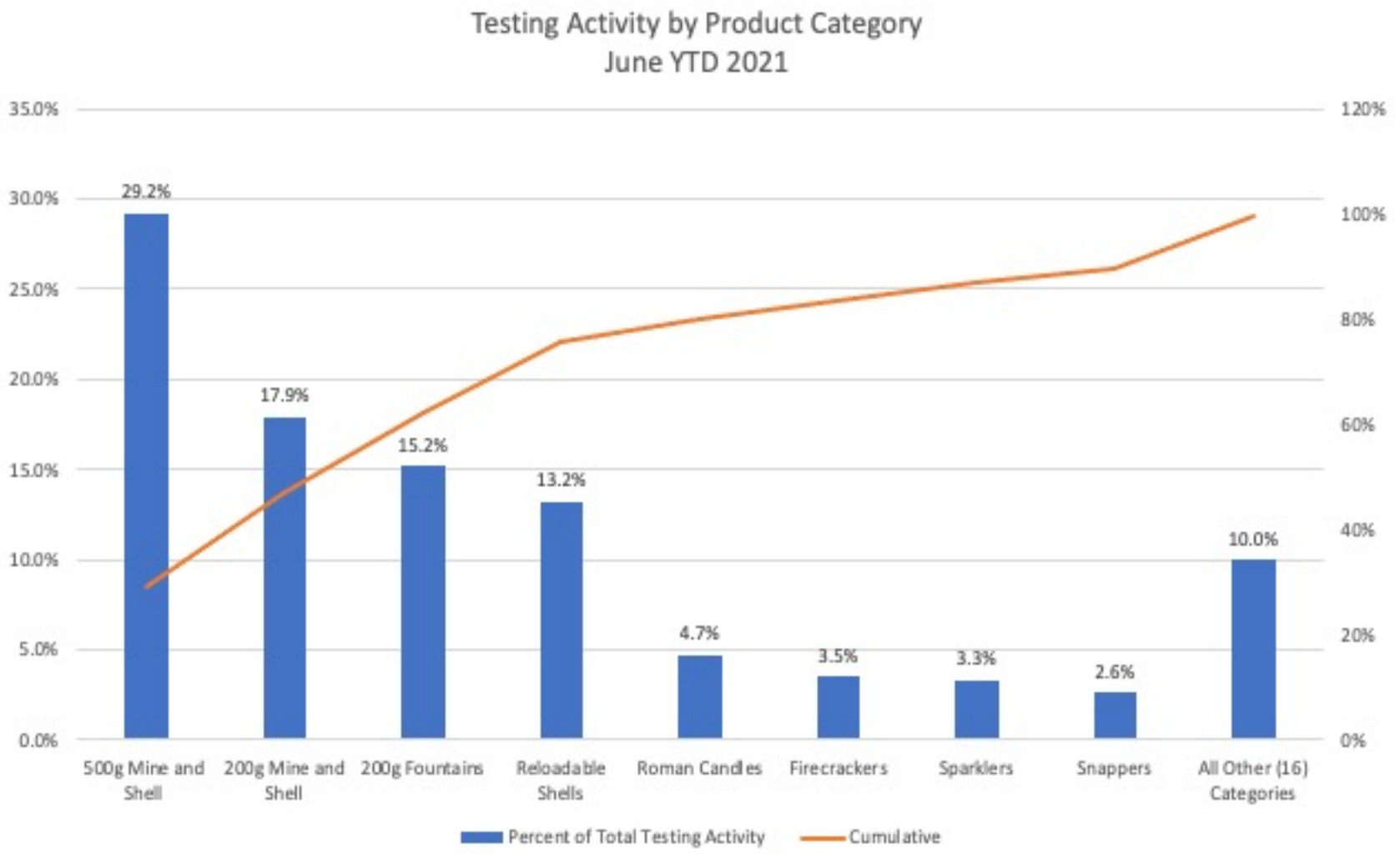


Current Failure Trends in Consumer Fireworks

Chuck Rogers – BV Americas Director, Technical Consulting & Supply Chain Solutions

Key Observations

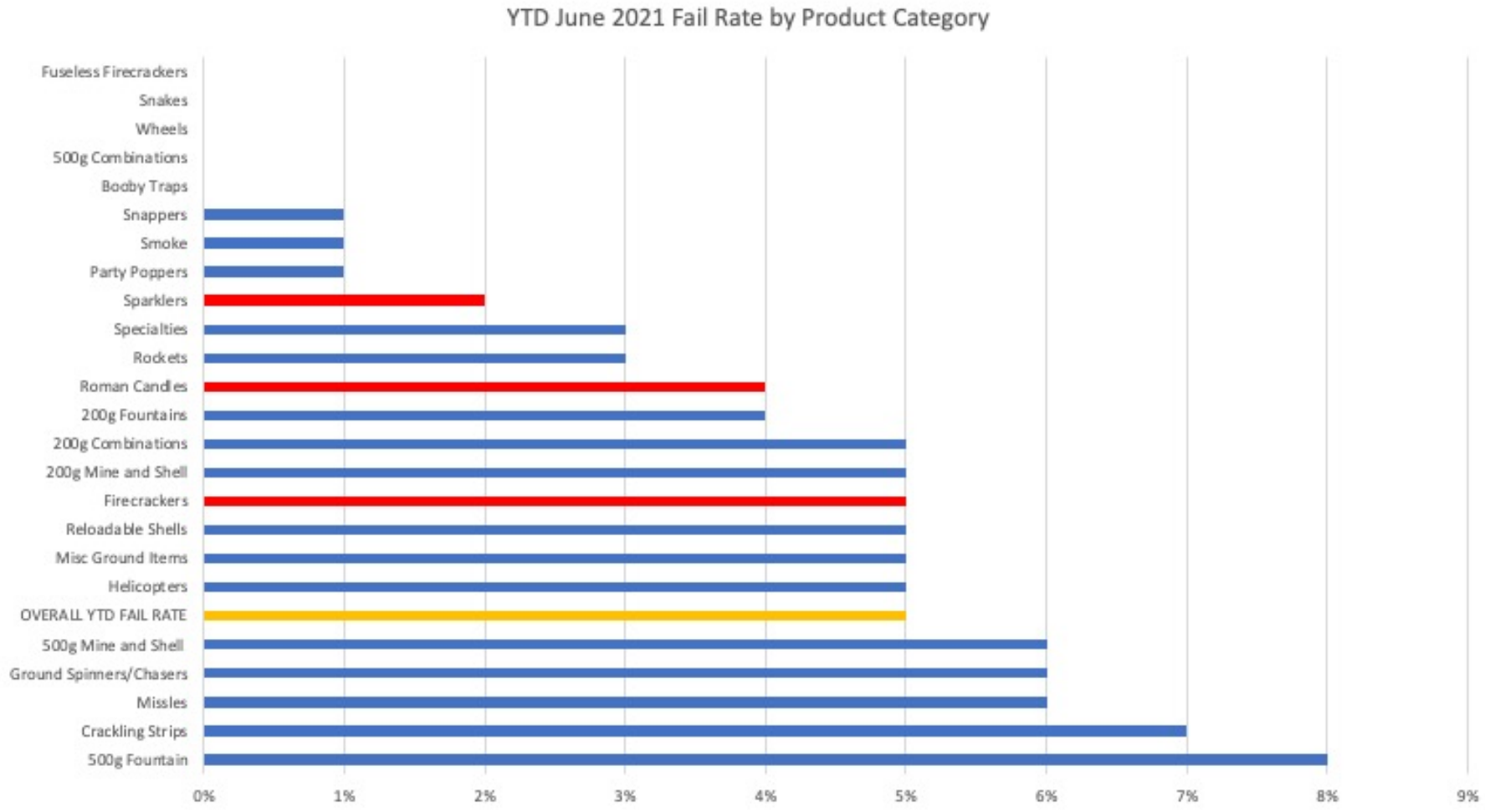
- Mine and shell devices comprise almost half of our testing activity but greater than half of our resources.
- Of the 10,300 estimated injuries reported by CPSC*, the agency was able to identify the fireworks device in about half of the incidents.
- The top 4 testing activity categories are associated with only about 10% of CPSC estimated injuries.
- Firecrackers (25%), Sparklers (19%), and Roman Candles (13%) lead CPSC's list.



*Source: CPSC 2020 Fireworks Annual Report, *Fireworks-Related Deaths, Emergency Department-Treated Injuries, and Enforcement Activities During 2020*; June 2021

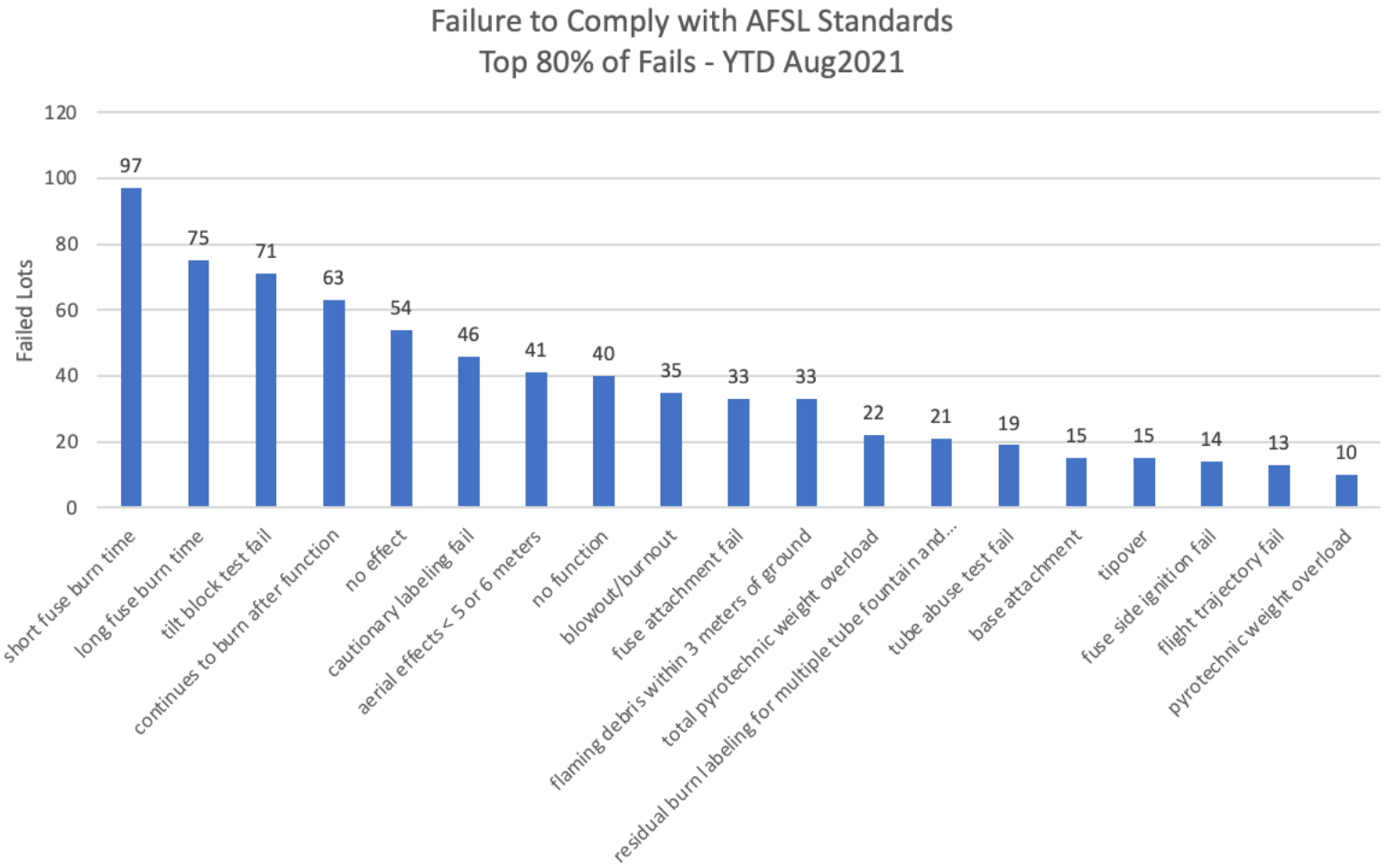
Key Observations

- Overall YTD Compliance rate for all product categories is 95%.
  - 6.6M cases determined to be compliant versus 327k found to be non-compliant
- Top 3 contributors to injuries, per CPSC, are at or better than the overall compliance rate.



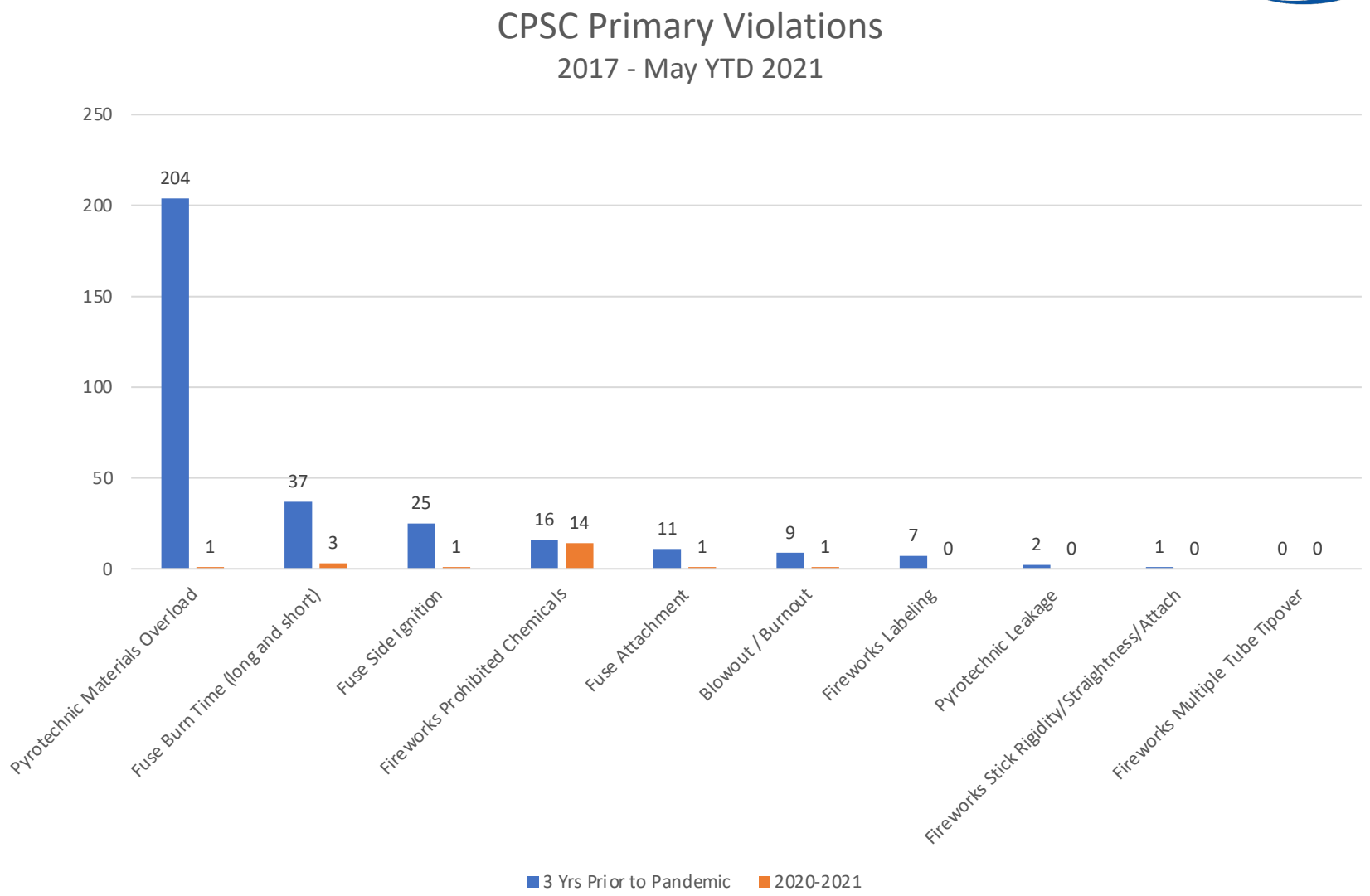
Key Observations

- Poor fuse quality continues to be #1 reason for failure, responsible for the largest number of YTD fails.
  - Short burn time – 97
  - Long burn time – 75
  - Fail to function – 40
  - Side ignition – 14
- Residual burn failures are relatively new and growing.
  - Did not appear in “Top 10” reported in 2018 and 2019.
  - First appeared in 2020 report at 5% of total failures.

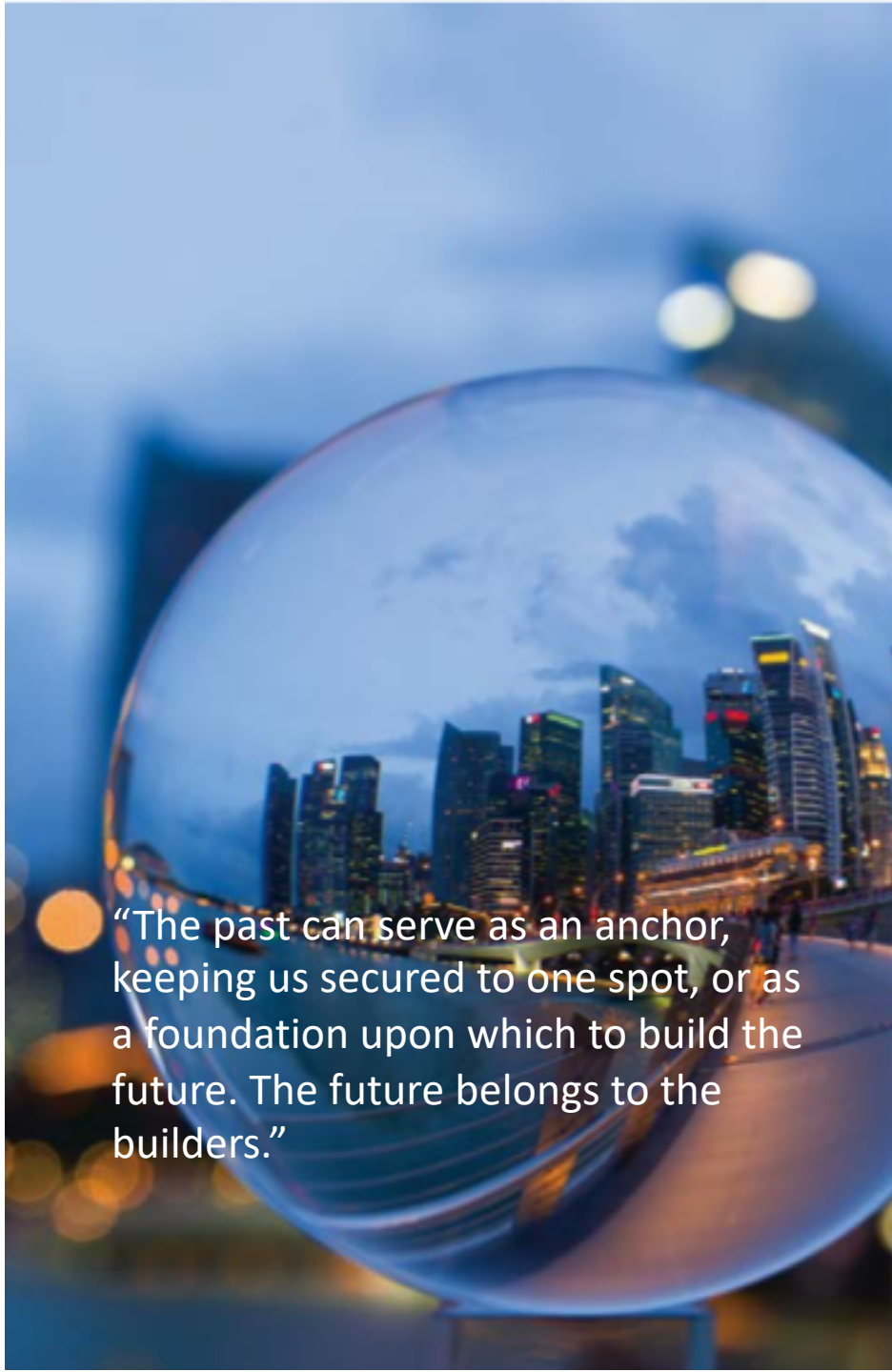


Key Observations

- Overloaded fireworks leads reasons for NOVs.
  - About 100 firms cited.
  - 3 companies responsible for roughly 1/3rd of violations.
  - Most NOVs issued in 2018 and 2019.
  - Subjective test method or violative product?
- Fuse failures.
- Prohibited chemicals.
  - CPSC AND DOT violations.
  - Cannot easily verify in field.
  - AFSL not privy to violative chemical.



What the Last 25 Years Tell Us About What Lies Ahead



Consumers have changed dramatically

- Better access to information
  - Growth of the internet (since 1993)
  - Social media (since 2004)
  - Smart phones always connected and available (Blackberry 1999/iPhone 2007)
- More knowledgeable
- More vocal
- More engaged
- Great expectations for health, safety, and quality

Regulations and Standards Continue to Grow

- Increased in number and complexity
  - CPSIA passage in 2008 was landmark legislation
  - Local and state regulations have also increased
- Increased sanctions for violators
- Continued interest in alignment of regulations and standards
- Growing influence of involved, connected consumers

The CPSC Has Become Larger and More Aggressive

- CPSIA
  - Certification requirements
  - Higher penalties, tougher sanctions
- Introduction of compliance programs in settlements
- Created the Enforcement and Litigation Division within Office of Compliance and Field Operations
  - Integrated legal staff into compliance operation to help build cases against targeted firms
- Front line of compliance shifts from HQ to Ports of Entry

What Lies Ahead?
Regulations, Regulators, and Standards

- Regulations and standards continue to expand
  - More regulations, more complexity, and higher penalties
- Growing involvement of consumers
  - Social media influencing public officials and public policy
  - Victims becoming advocates
    - 501(c)(3) start-up with settlement/trial award
- Regulators sharing much more information and data
  - Improving intelligence gathering, risk analytics, and knowledge management capabilities
  - Shifting emphasis from detection to prevention
  - Increasing reliance on private sector conformity assessment
  - Increasing cooperation in market surveillance and enforcement activities

"My money is not on those who claim to be able to predict the future, but on those who have demonstrated the ability to quickly adapt to the present."

CPSC – The Next Generation

Alexander Hoehn-Saric

Mary Boyle

Rich Trumka

How Will the CPSC Change?

- Committing to vigorous compliance
- Expanding hazard identification capabilities
- Emphasizing robust port surveillance
- Enhancing communications for public affairs
- Creating an intergovernmental office
- Enhancing product safety equity
- Investing in information technology
- Expanding laboratory capacity and locations
- Modernizing and restructuring the agency

How Should Industry Respond?

- Respect the power of public perception
  - Increased social and broadcast media consumption is leading to product liability cases
- Increase self-scrutiny while regulatory priorities evolve
  - Resource allocation based on potential risk
  - Enforcement of reporting and recall requirements
  - Pushing for improvements in recall effectiveness
- Work with – not against – regulators
  - Recent actions taken against Peloton, Amazon, and others make it clear the CPSC is prepared to take the fight to the courts and the public
- Understand the full scope of your regulatory exposure
- Communicate effectively with your stakeholders through their preferred channels

Election Results

Jay Howell – Executive Director

Closing Remarks

Tad Trout - Treasurer

We appreciate the opportunity to serve you!

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