



BULLER CRICHTON
ENVIRONMENTAL INC.

Measuring and Trending Occupational Exposures – Same Data / New View

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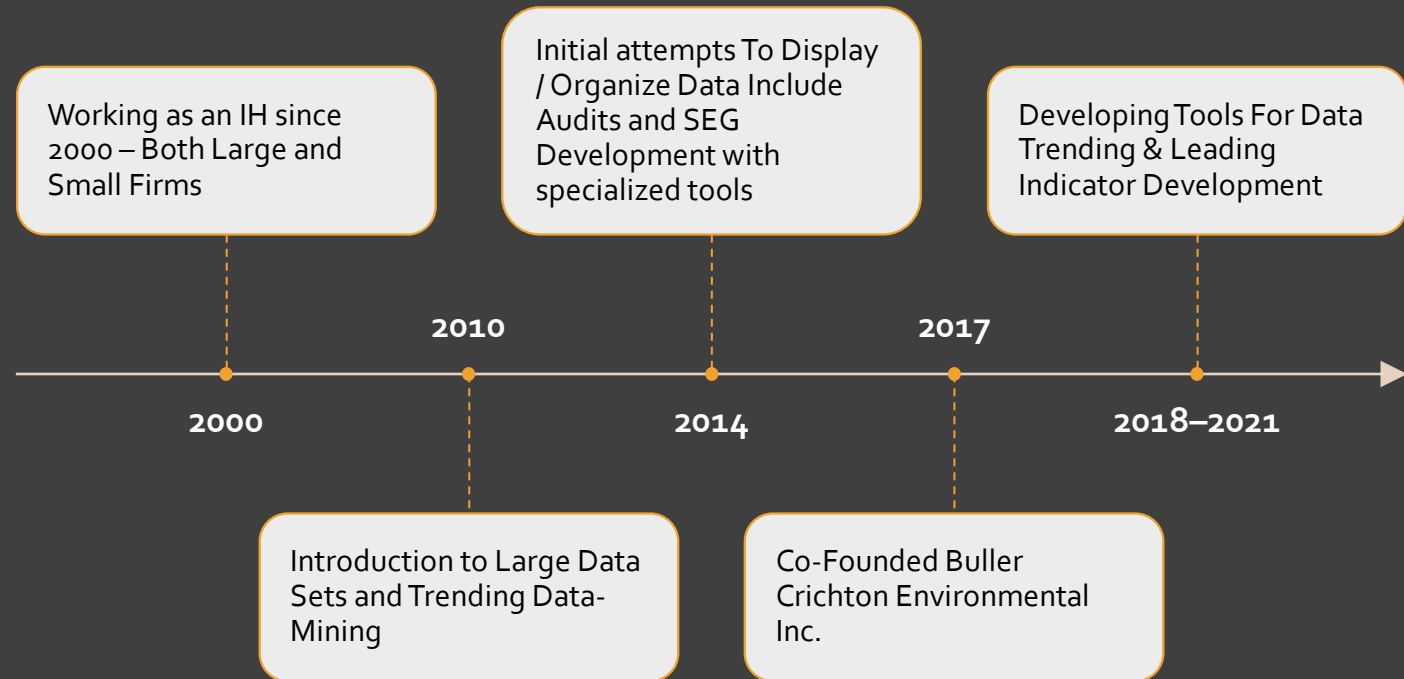
Course Outline

- 1) Health & Safety Moment
- 2) Introduction / My Journey on This Topic
- 3) Why This Is Important? Worker Health & Employment.
- 4) What's the Process for Measuring / Trending?
- 5) Pitfalls to Watch Out For.
- 6) Can we use this to create Leading Indicators?
- 7) Simple Presentation of Data.

A front-facing view of a red and white fire truck parked in a fire station. The truck is centered in the frame, with two large red fire doors visible on either side. The truck's front features a prominent grille with two circular headlights in the center, two larger rectangular headlights on the sides, and a red emergency light bar on the roof. The number '3' is visible on the right side of the front panel. The text 'HEALTH & SAFETY MOMENT' is overlaid in white on the truck's front panel.

HEALTH & SAFETY MOMENT

Introduction / My Journey





The wealth of business depends on the health of workers....

World Health Organization

Importance / Purpose

Global Estimates of the Burden of Injury and Illness at Work 2012



Globally 2.3 million deaths due to occupational circumstances.



Occupational Injuries = 318,000 deaths.



Work Related Diseases = 2,022,000 deaths.

Takala et al., Global Estimates of the Burden of Injury and Illness at Work in 2012.

Global Estimates of the Burden of Injury and Illness at Work 2012...

Global Estimates of the Burden of Injury and Illness at Work 2012

Country	Acute Fatalities Reported	Fatal Work Related Diseases
Canada	465	11,330
U.S.A	5,214	95,808
Australia	207	6,962
Top 27 Industrialized Nations	11,850	306,988

Takala et al., Global Estimates of the Burden of Injury and Illness at Work in 2012.

Global Burden of Disease - 2016

Estimates of Global Burden of Disease

In 2016 – estimated 1.53 million deaths and 76.1 million Disability-Adjusted Life Years (DALYs) from the effects of occupational risk factors (i.e. carcinogens, gases, particulate matter, asthmagens, fumes, second hand smoke, noise and ergonomic risk factors).

Global estimates of economic costs vary from 1.8% - 6% of GDP – **3.8 billion USD in 2016**

Driscoll et al. Global and regional burden of disease and injury in 2016 arising from occupational exposures: a systematic analysis for the Global Burden of Disease Study 2016.

The Process

Occupation List / Numbers

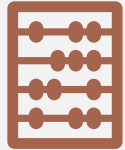
Risk Registry Development

Qualitative Risk Assessment

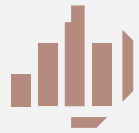
SEG / Sample Number
Development

Trend and Display Data – OH
Leading Indicators





Collect Numbers of Workers In Each Position

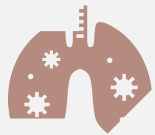


Review SDS

Occupation Lists / Numbers



Qualitative Site Tour

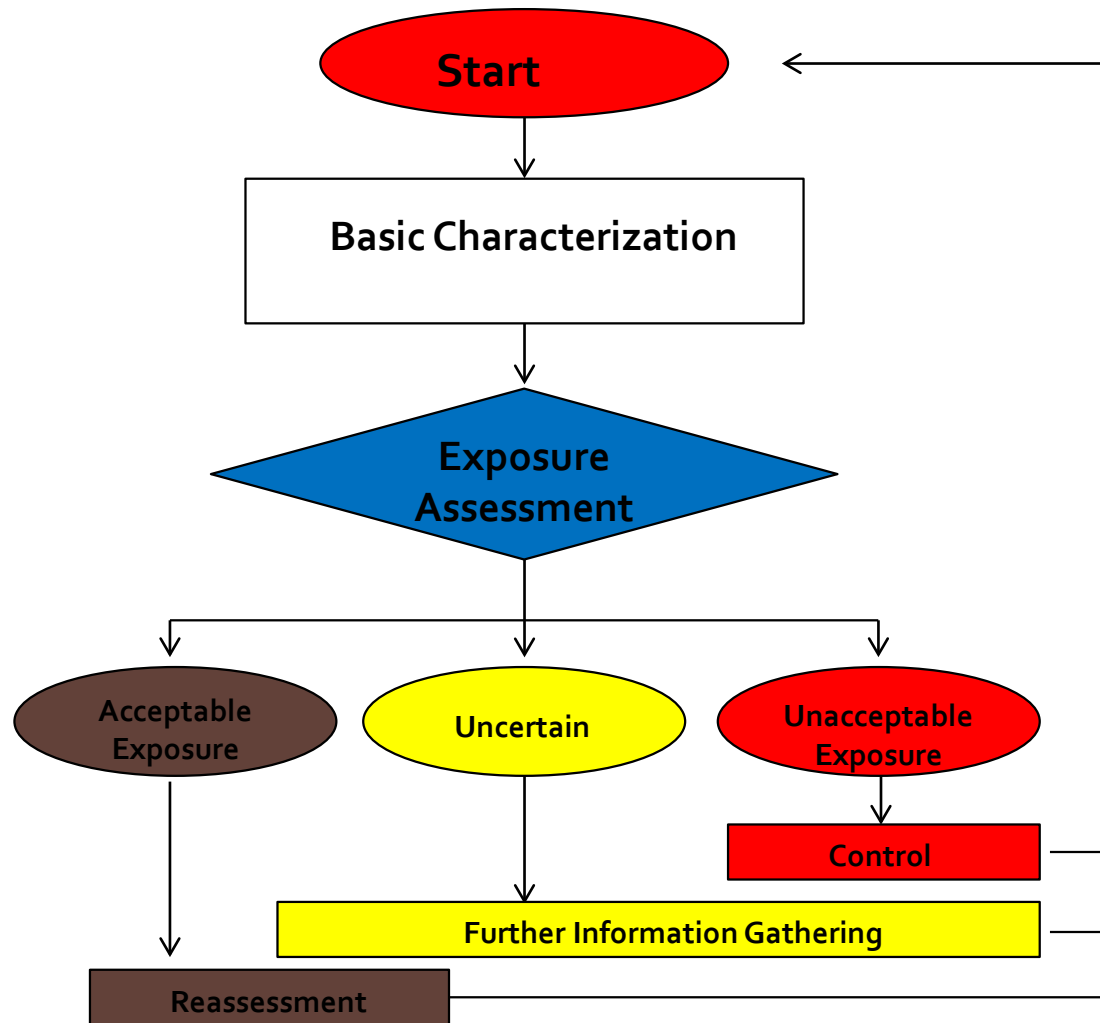


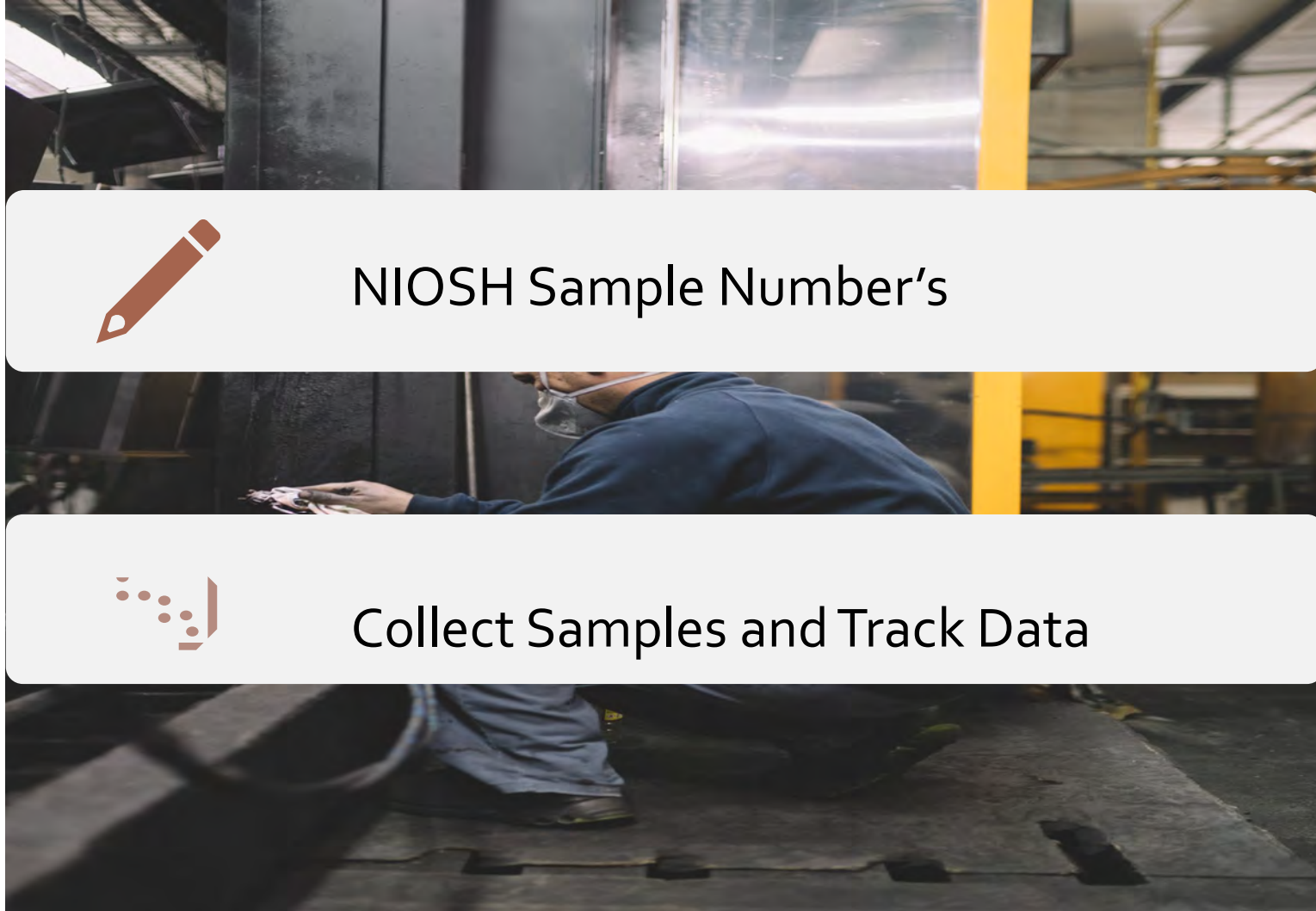
Hazardous Ingredients



Risk Registry
Development

Qualitative Risk Assessment





NIOSH Sample Number's



Collect Samples and Track Data

SEG & Sample Number Development



Leading Indicators –
Why Do We Need
Them?



Leading Indicators - Definition

Proactive measures that measure prevention efforts and can be observed and recorded prior to an injury.

Leading Indicators - Evolution



Leading indicators evolve through the life of the organization, as your hygiene program evolves your indicators will as well.

Safety Leading Indicators



NEAR MISSES OR
SIGNIFICANT EVENTS
(WITH POTENTIAL FOR A
FATAL IMPACT)



SAFETY MEETINGS



INSPECTIONS

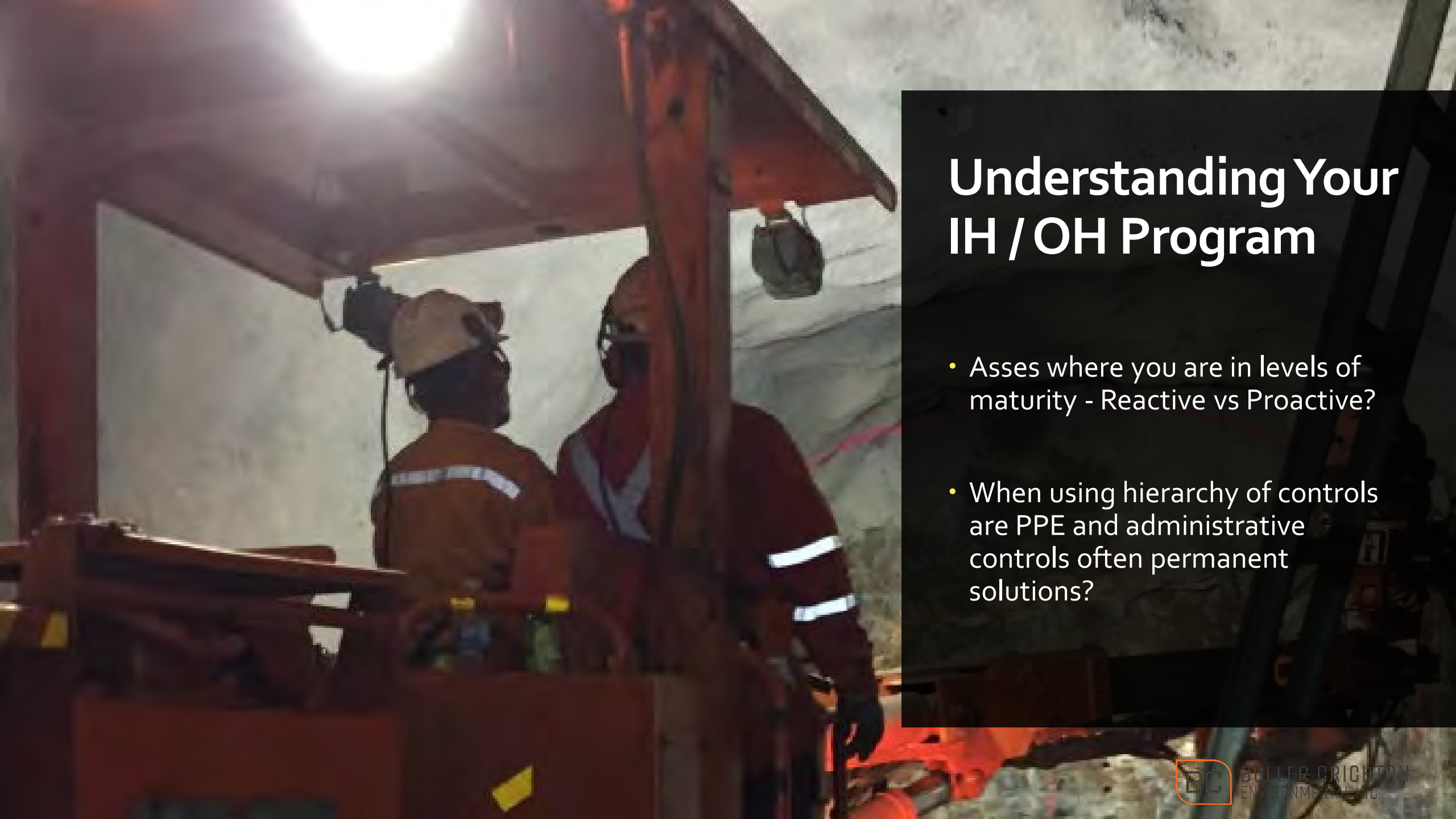


VISIBLE FELT LEADERSHIP
INTERACTIONS.



How To Create Leading Indicators in IH / OH

- Understand and Define Your IH / OH Program.

A photograph of two construction workers in safety gear (hard hats, safety glasses, and high-visibility orange shirts) standing on a construction site. They are looking at each other and appear to be in conversation. The background shows a concrete wall and some construction equipment. The lighting is bright, possibly from a work light.

Understanding Your IH / OH Program

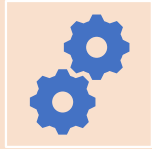
- Asses where you are in levels of maturity - Reactive vs Proactive?
- When using hierarchy of controls are PPE and administrative controls often permanent solutions?

Developing Leading Indicators for OH / IH

- They must be trackable...
- They must be related to health not safety...
- They should be simple...
- They can be original – Not many currently exist!



Examples of OH/IH Leading Indicators



Develop SEG's (Similar exposure groups) and sample numbers.



Tracking corrective actions, using the hierarchy of controls.

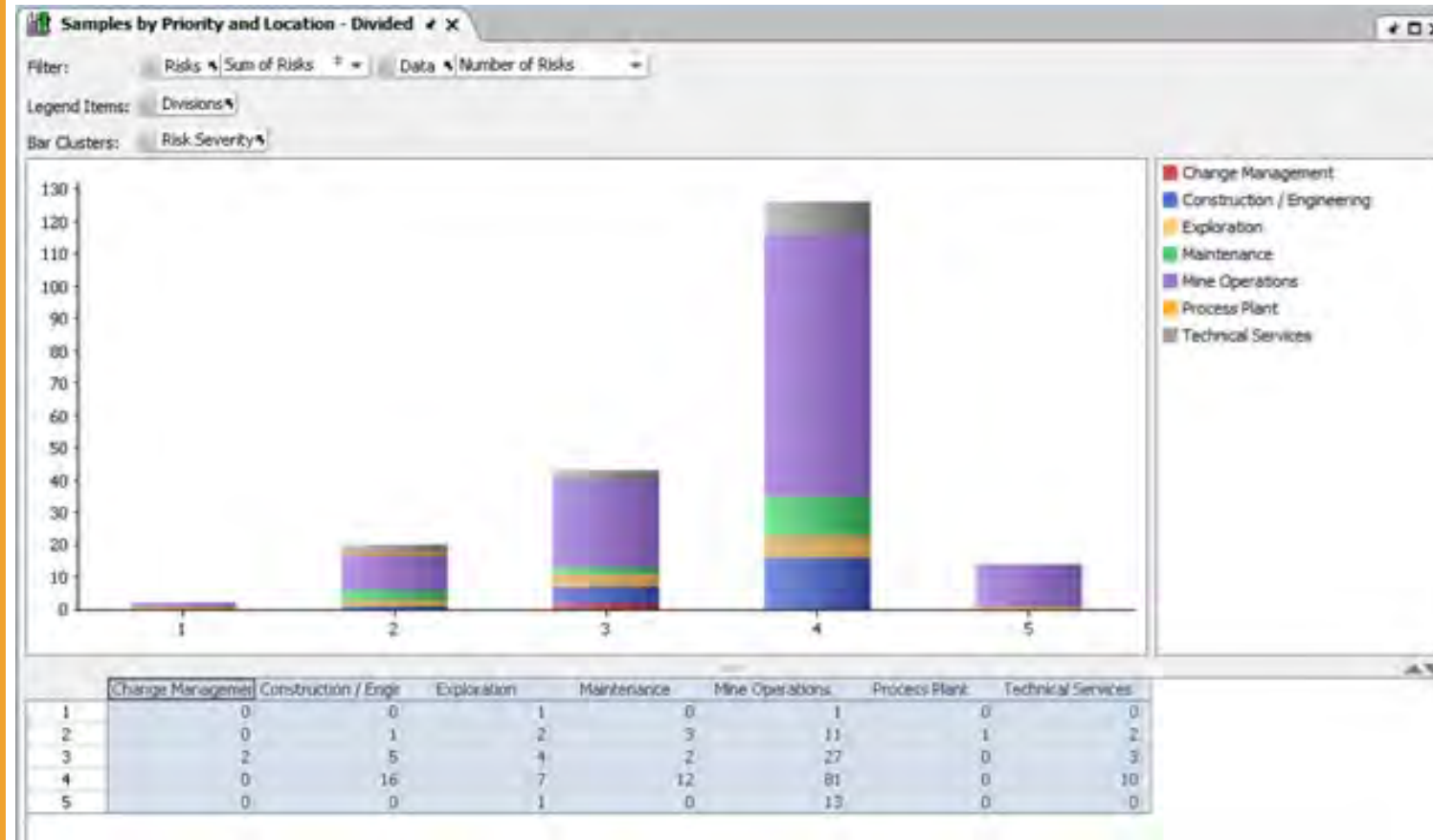


Medical surveillance / % to plan

Examples of a Leading Indicators

- Health Risk Registry
- Tracking Over Exposures
- Over Exposures / With and Without PPE
- Personal Vs. Area Samples
- Samples Close To Action Limit
- Trending Data

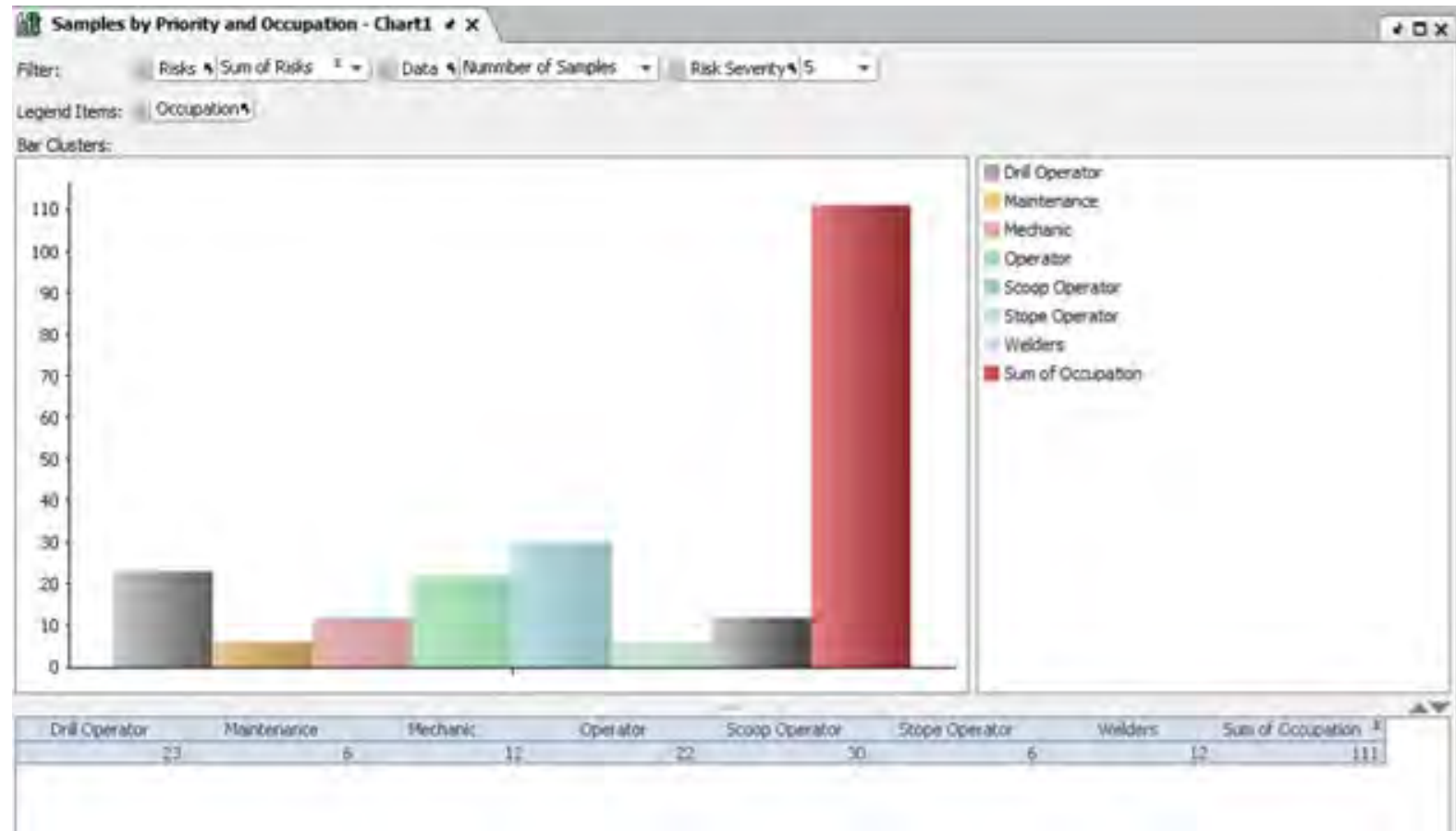
Risk Severity – Samples Required by Department



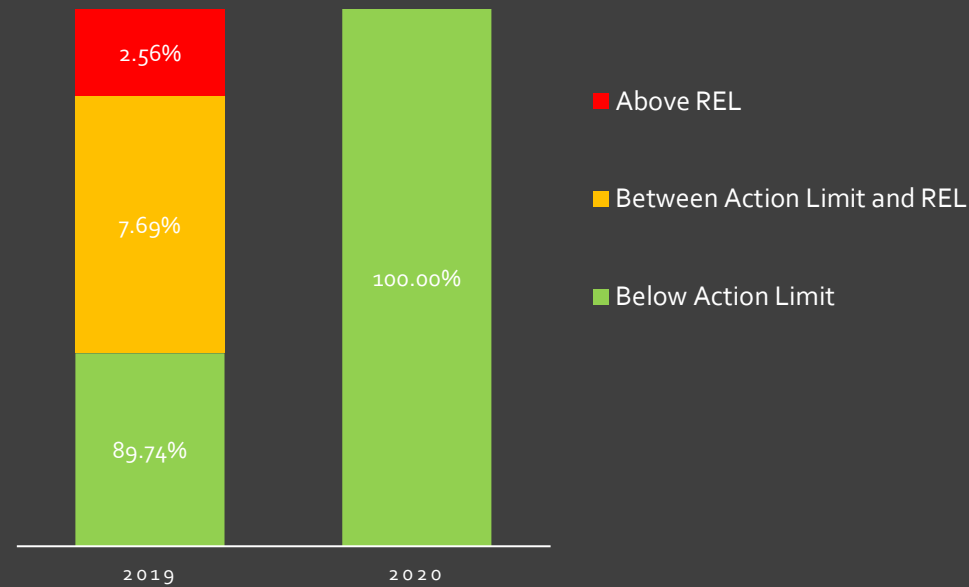
Data Trending

Data Trending

Risk Severity – Samples Required by Occupation



METHYLENE CHLORIDE



SAMPLE SIZE

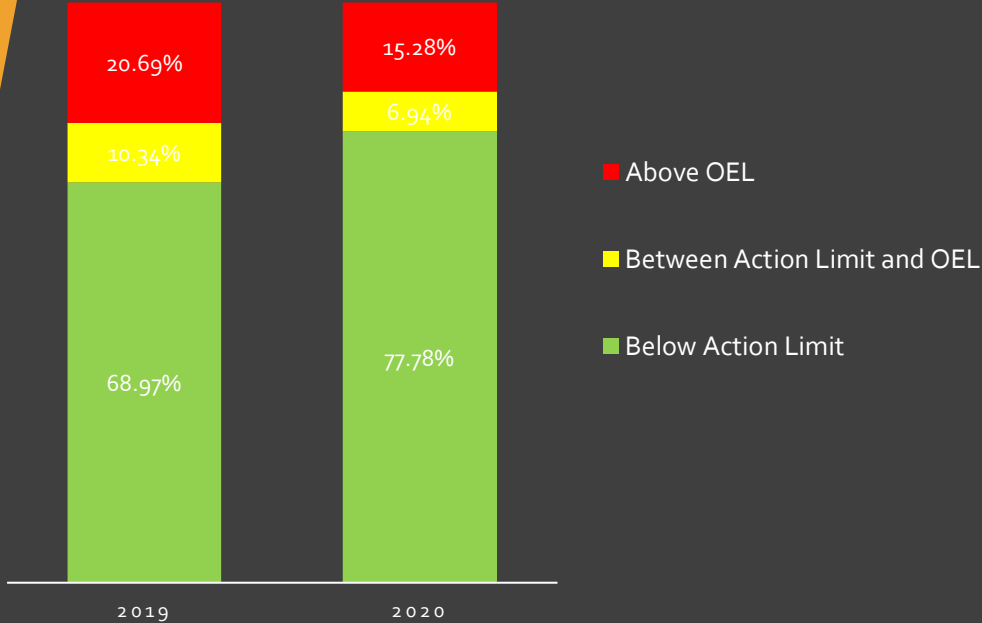
2019: 39
Personal: 100%
Area: 0%

2020: 31
Personal: 100%
Area: 0%

REL: Recommended Exposure Limit

Action Limit: 50% of OEL

LEAD EXPOSURE



SAMPLE SIZE

2019: 19
Personal: 93%
Area: 7%

2020: 62
Personal: 86%
Area: 16%

OEL: Occupational Exposure Limit

Action Limit: 50% of OEL

Conclusion

Accurate Data

Clear Trends

Management
Support

Improve
Worker
Health

Final Thoughts / Questions?

