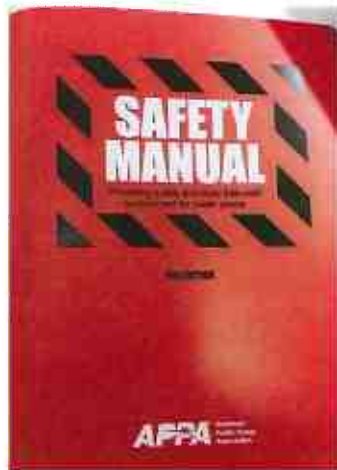


# Safety Benchmarking and Safety Related Tracking Programs

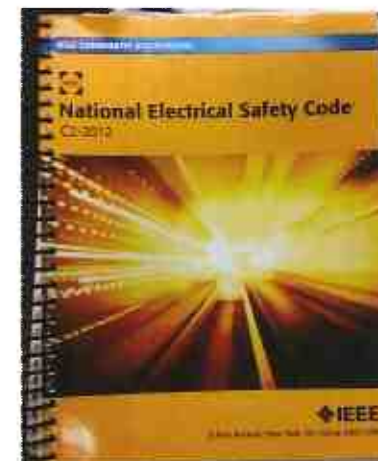
Alex Hofmann  
American Public Power Association  
[ahofmann@publicpower.org](mailto:ahofmann@publicpower.org)

# APPA Safety Focus

Safety Manual 15<sup>th</sup> Edition



National Electric Safety Code

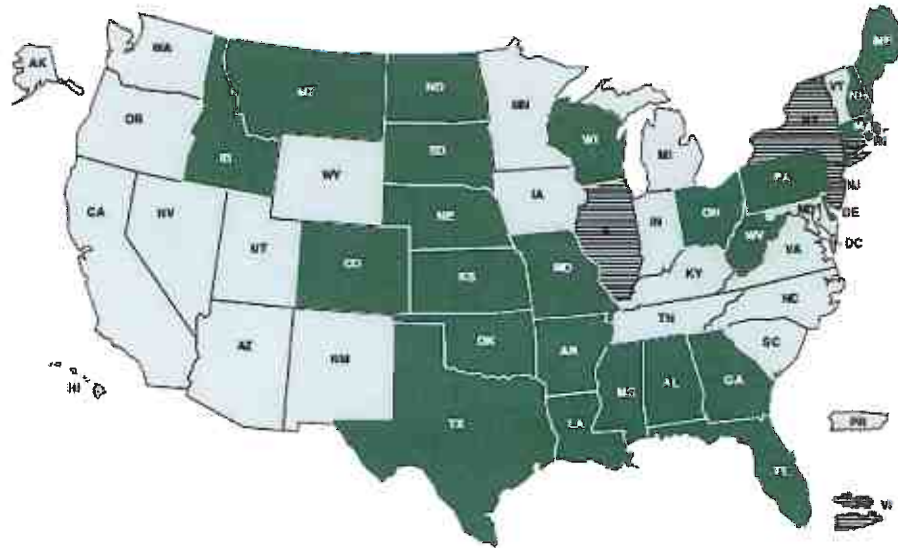





Reliable Public Power Provider Program



# Safety is Important Everywhere

## OSHA-Approved State Plans



-  OSHA-approved state plans (private sector and public employees)
-  Federal OSHA (private sector and most federal employees)
-  OSHA-approved state plans (for public employees only; private sector employees are covered by Federal OSHA)

[http://www.elcosh.org/document/3898/d001341/OSHA+Construction+Industry+Digest.html?show\\_text=1](http://www.elcosh.org/document/3898/d001341/OSHA+Construction+Industry+Digest.html?show_text=1)

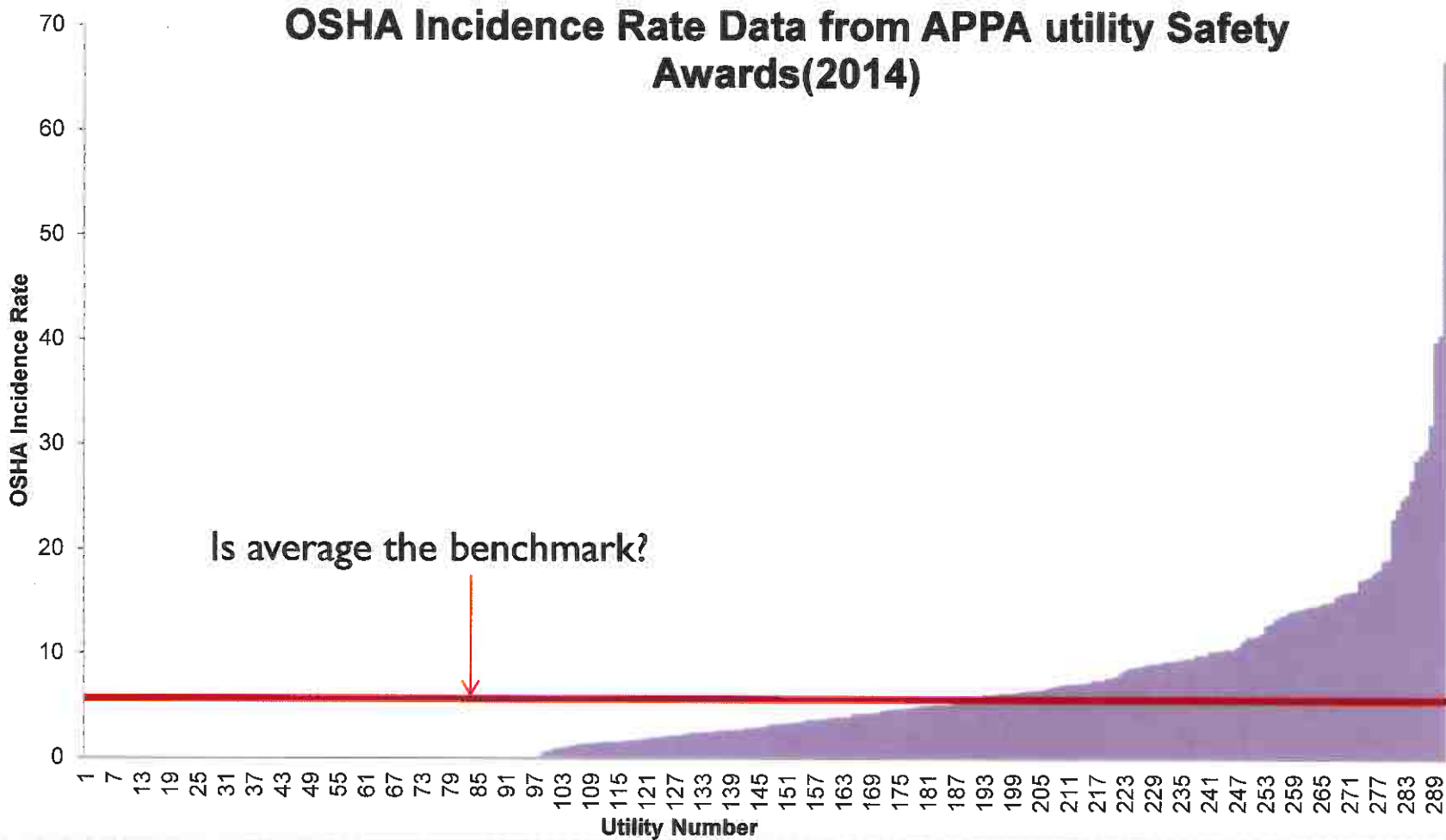
# Initial Look at Safety Data

---

- ▶ Incidence rate is all over the map
- ▶ Small organizations have a lot of zero years, or very high incidence rates
- ▶ Large organizations have numbers that barely move by comparison no matter how many cases/ incidents

$$\text{IR} = \frac{\text{Number of OSHA Recordable Cases X 200,000}}{\text{Number of Employee labor hours worked}}$$

# Benchmarking with the Incidence Rate



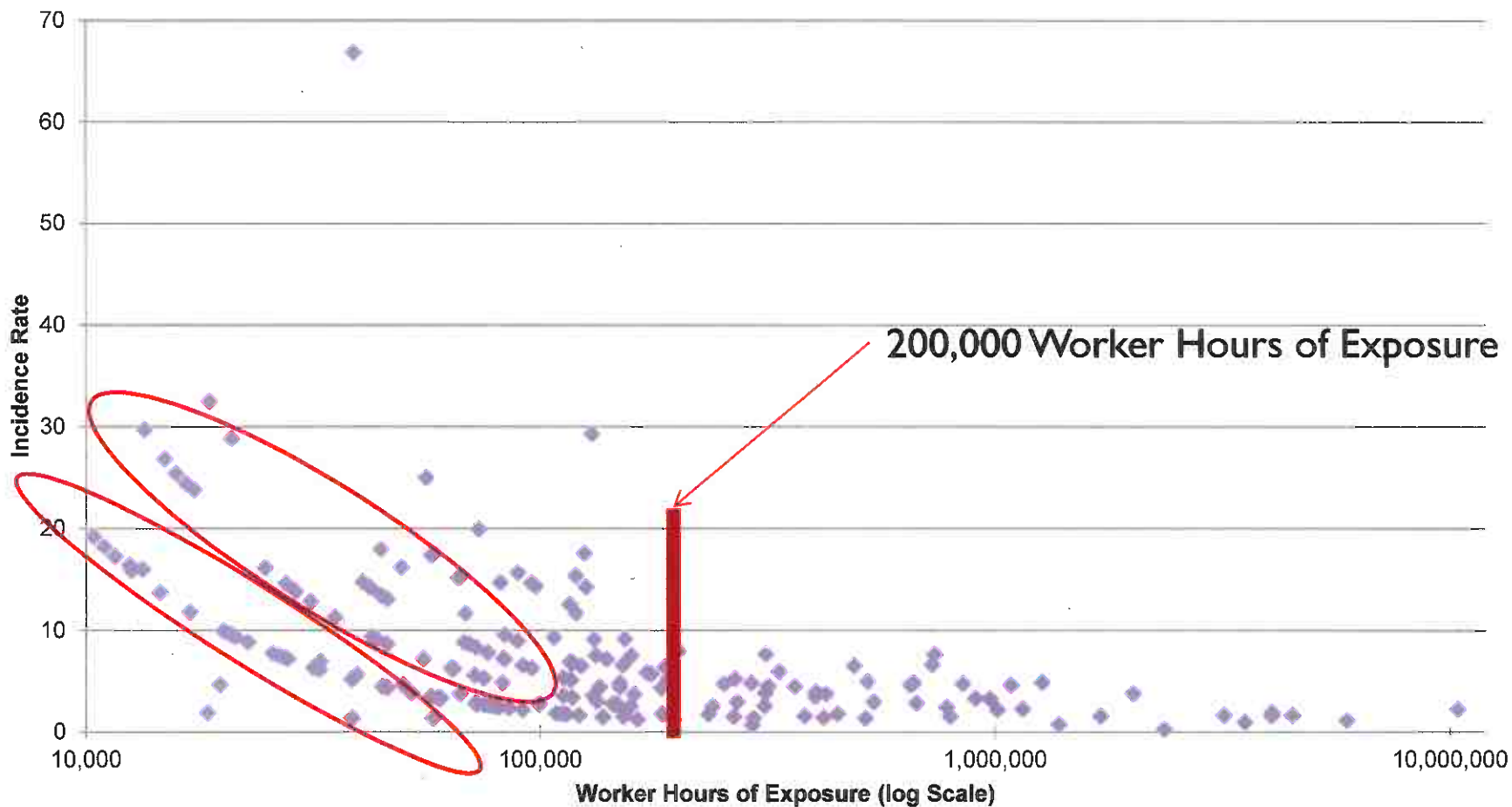
# Key Issues

---

- ▶ Organizations may have trouble reporting the same incident consistently
- ▶ Equivalency between incident cause, severity level, and work type can be difficult to determine
- ▶ Zero incidence rate years (does this mean more safe?)
- ▶ Huge incidence rate years (does this mean less safe?)

# Safety Data Overview

**Incidence Rate against worker hours of exposure --2014 --all zeros deleted -- log scale for worker hours of exposure**





# Key Distractions

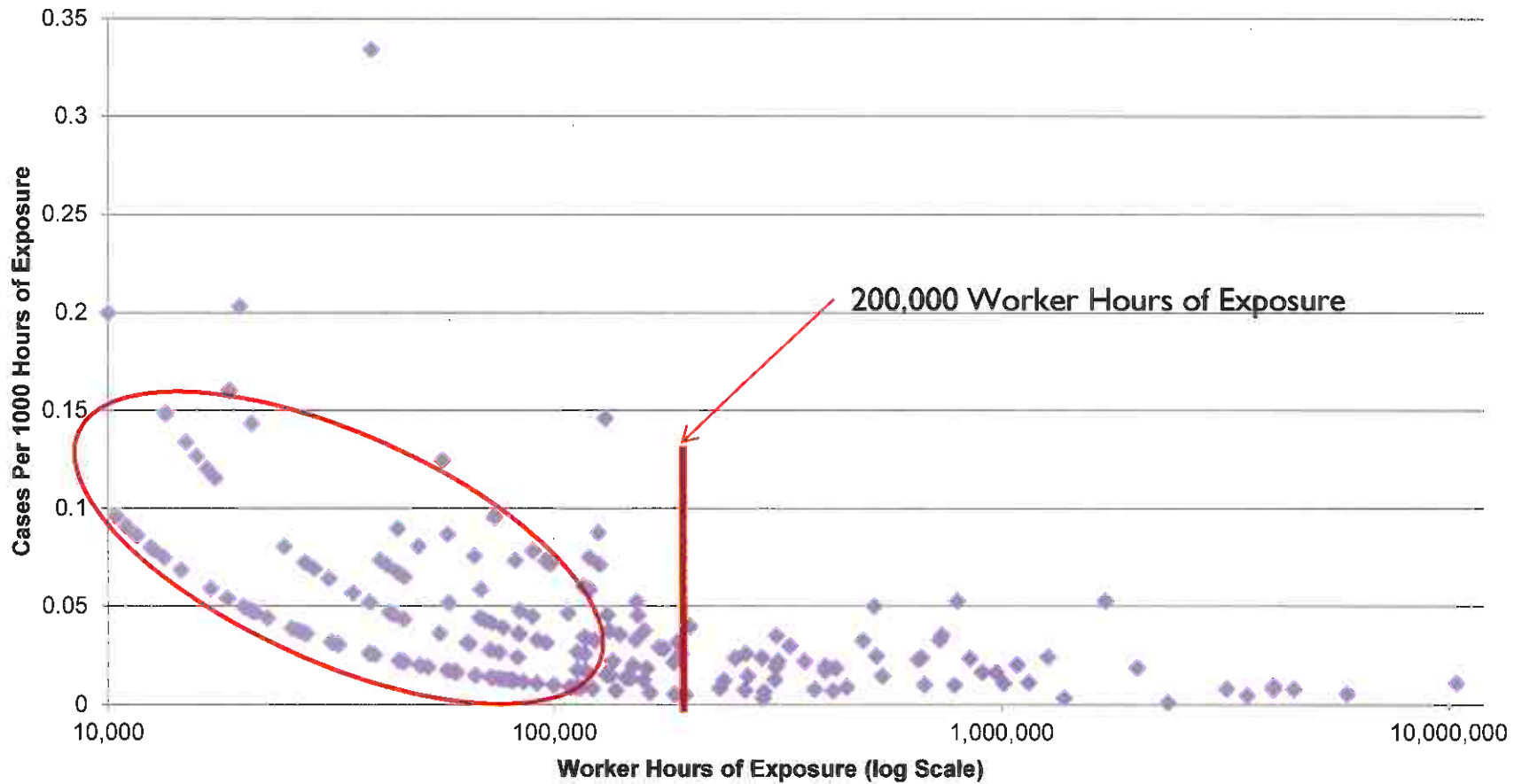
---

- ▶ Does a rate with incremental steps present us with useful curves of equivalent injury, or is it misleading?
- ▶ Does a rate comparison make sense for smaller probabilities of incident occurrence per person-year (< 5%, <1%, <0.5%)?



# Safety Data Overview

**Incident Rate per 1000 Worker Hours of Exposure --all zeros deleted -- Log Scale For Worker Hours of Exposure**

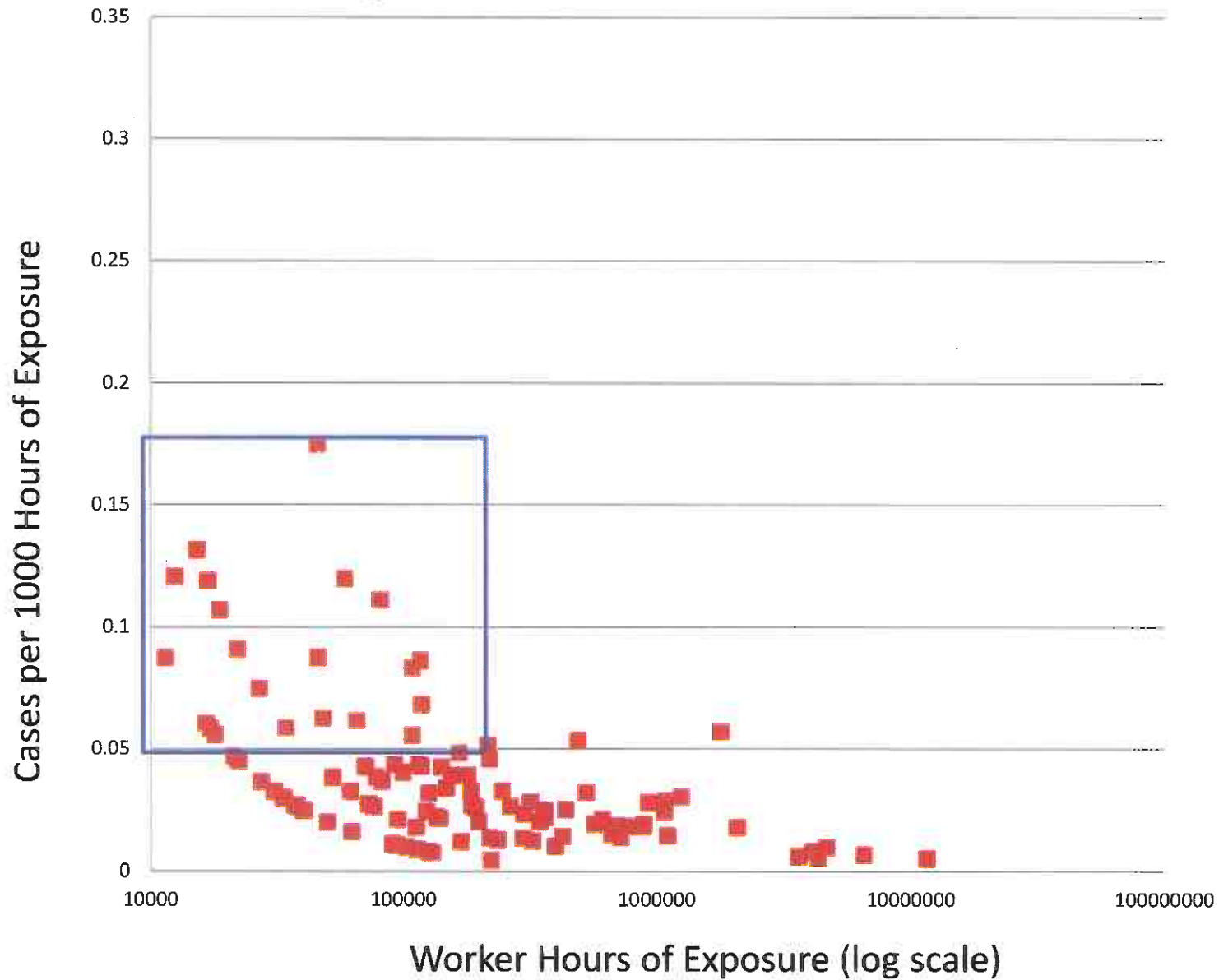


# Data Exploration

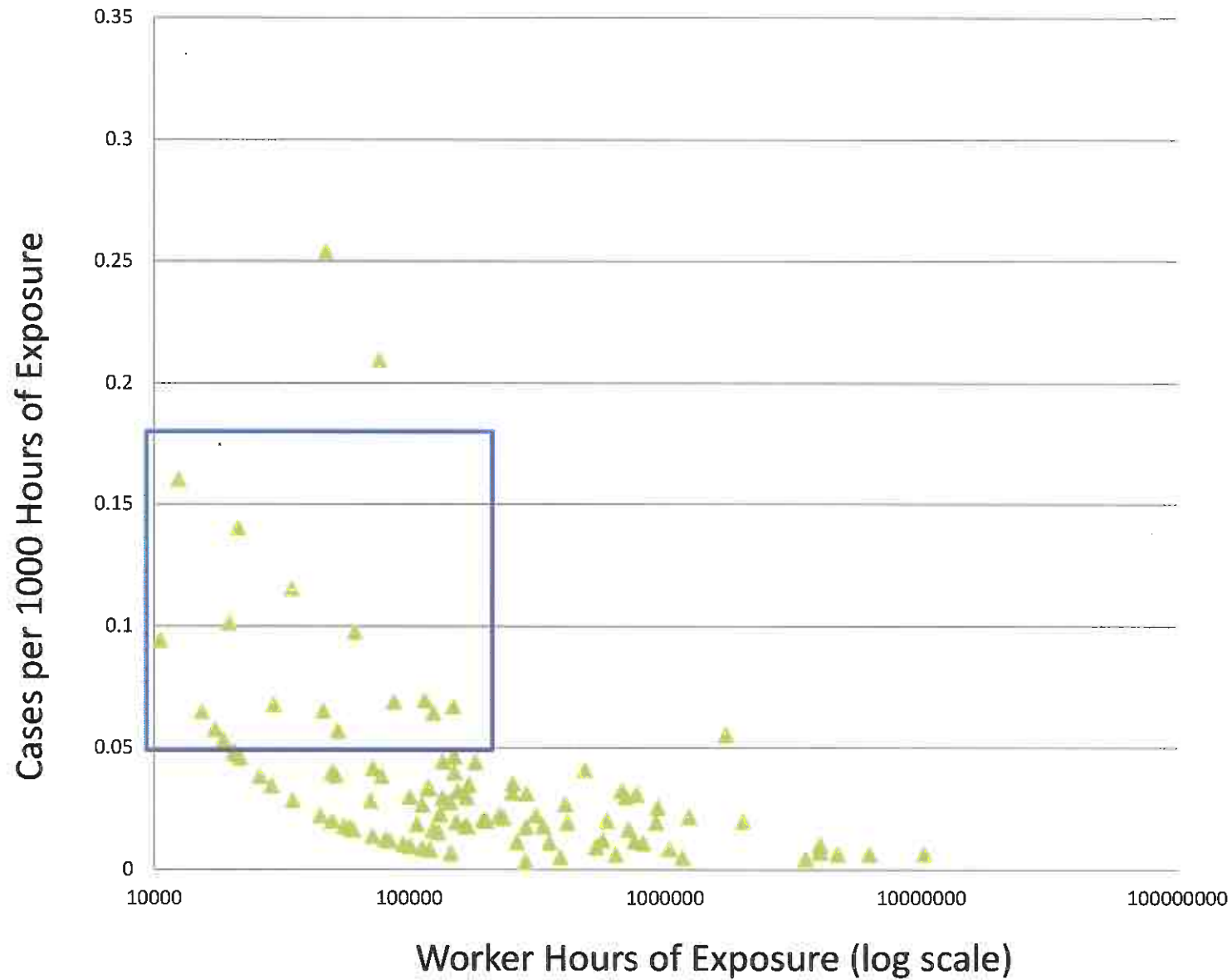
---

- ▶ Does incidence rate change over time for the same utility (does it get lower if you adjust the utility incidence rate data over multiple years)?
- ▶ Do large utilities have a significant incidence rate differential for the same number of incidents as they get bigger too?

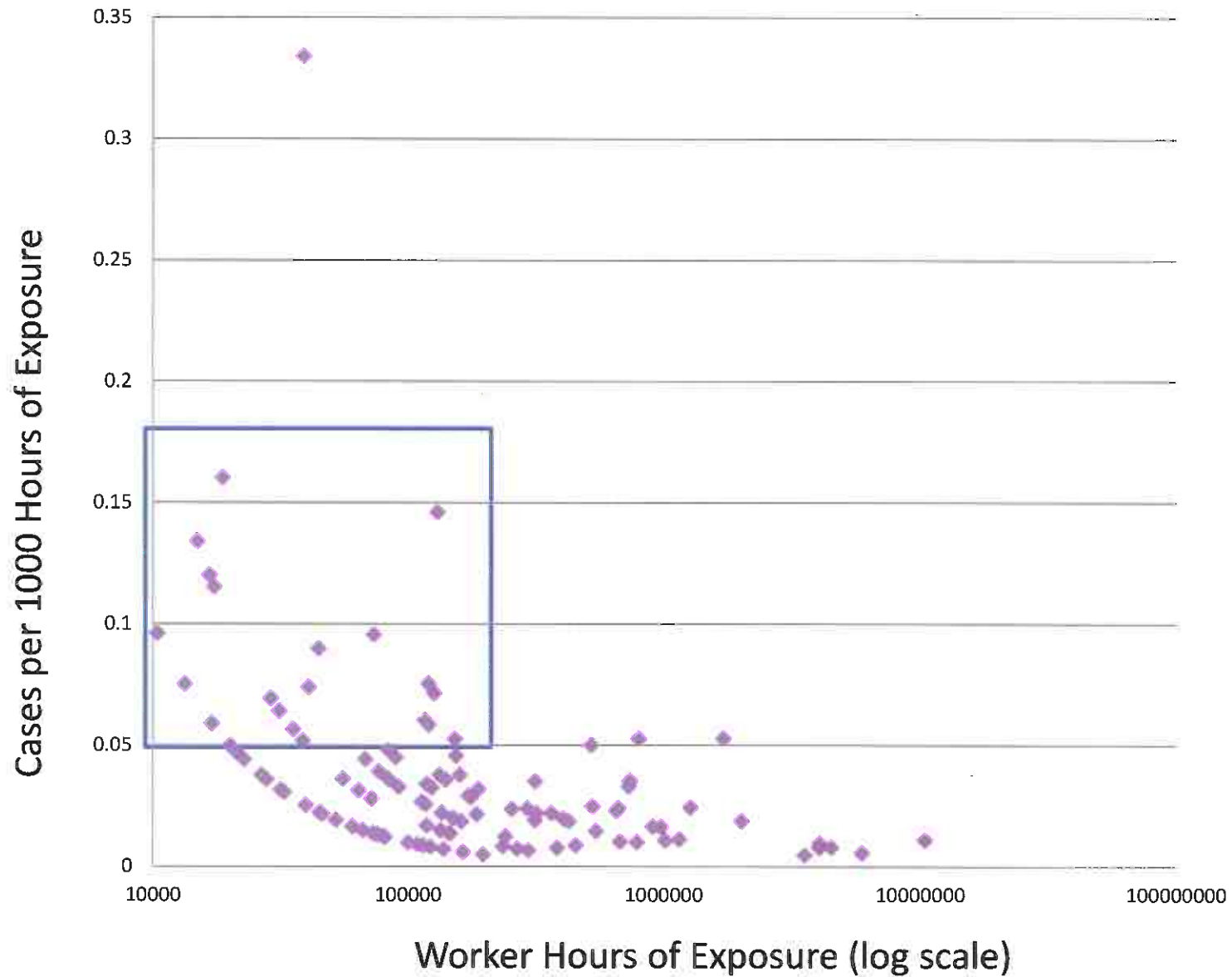
# Safety Data Overview - 2012



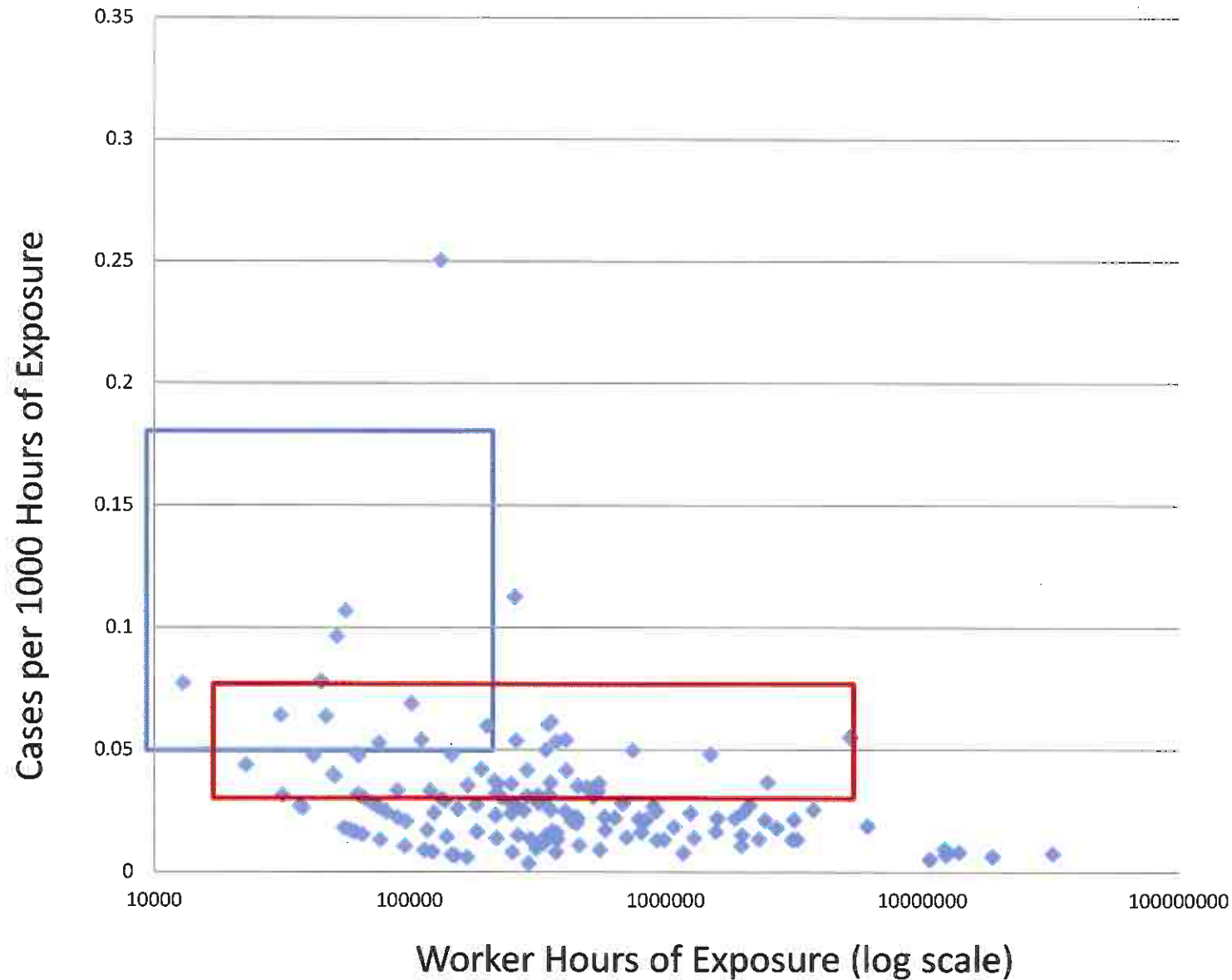
# Safety Data Overview - 2013



# Safety Data Overview - 2014



# Safety Data Overview – 3-year Data



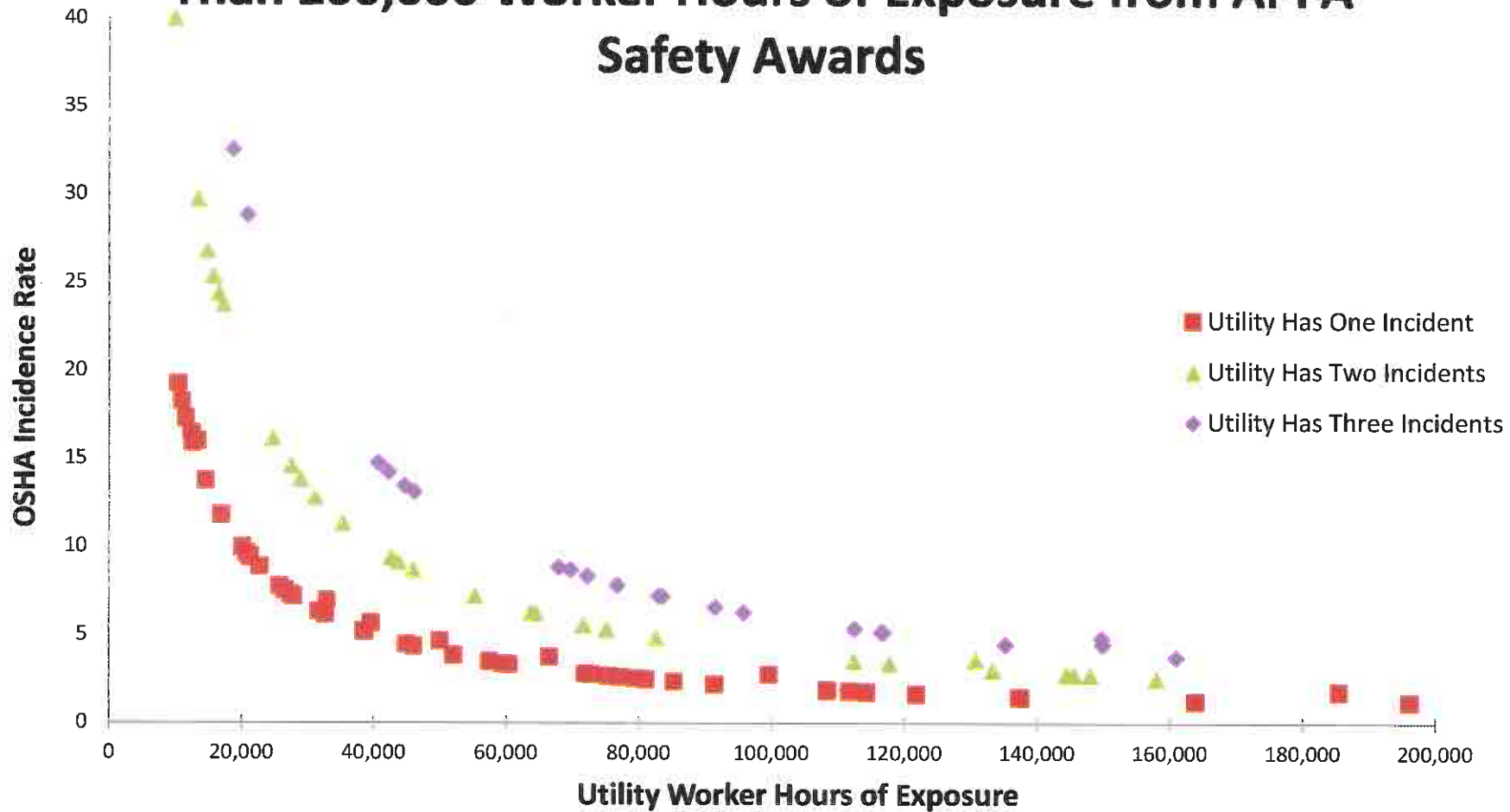
# Initial Safety Data Benchmarking Questions

- ▶ **Back to incidence rate. This data means:**
  - ▶ That incidence rate for all organizations is mappable like steps on a ladder.
  - ▶ That comparing across different worker hours of exposure will be similar to working in different scales (incremental incident).
  - ▶ Long-term safety (probability of accident) can be similar for wildly different incidence rates.



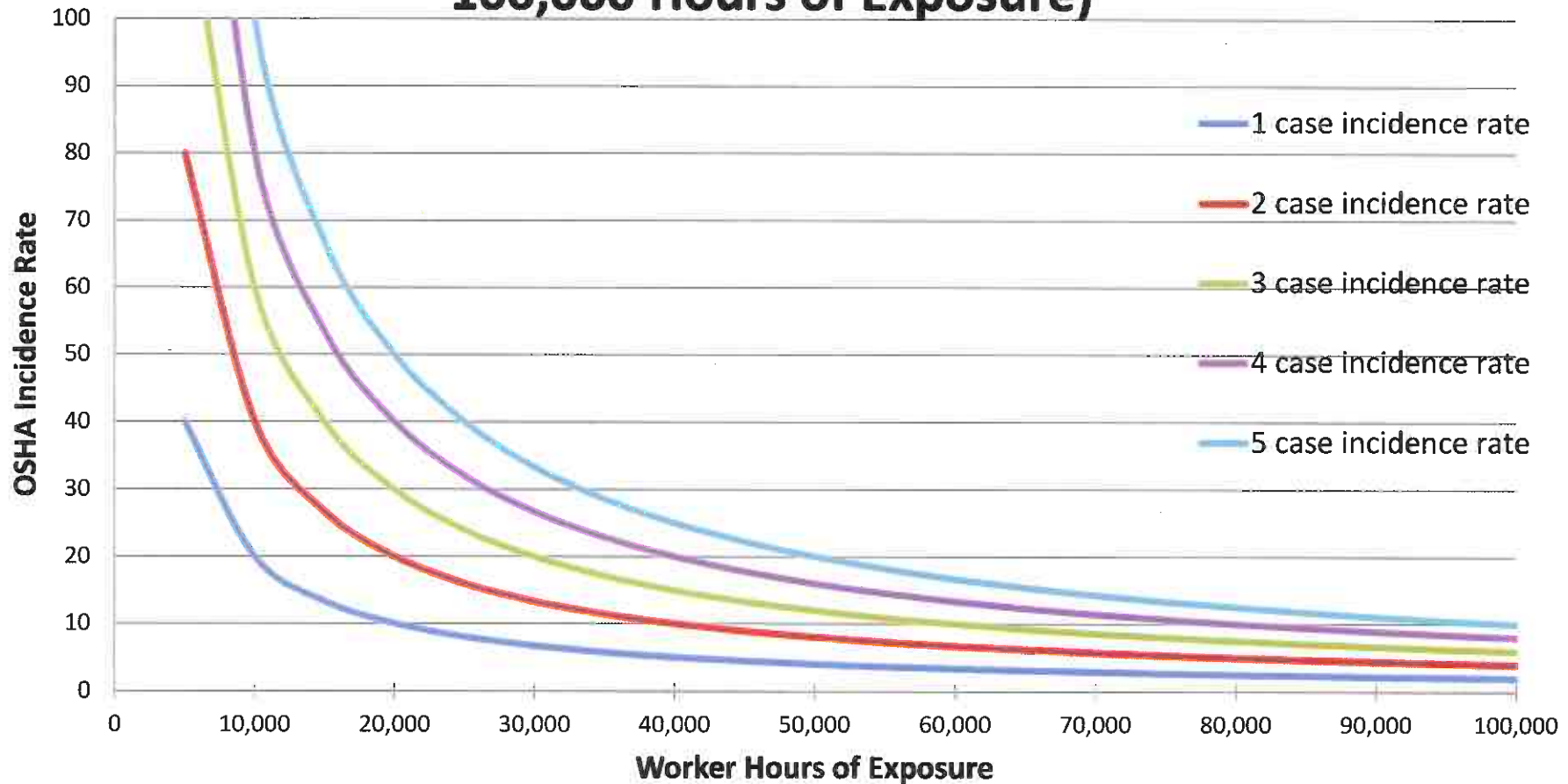
# Safety Data Overview – 2014 Data

## OSHA Incidence Rate Curves for Utilities With Less Than 200,000 Worker Hours of Exposure from APPA Safety Awards



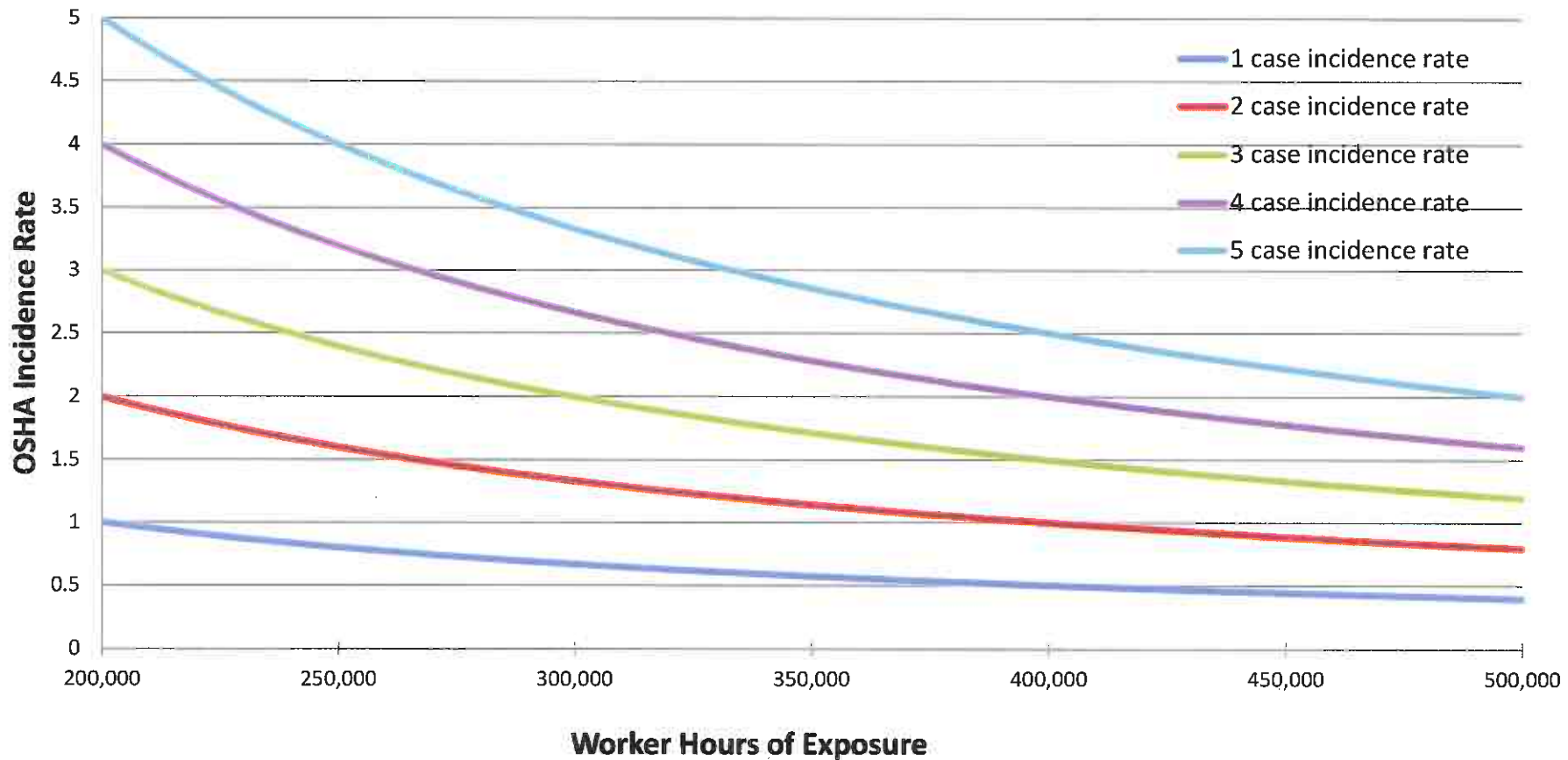
# Safety Data Overview – Model Data

## Modeled OSHA Incidence Rate Versus Worker Hours of Exposure for Varying Numbers of Cases (Under 100,000 Hours of Exposure)



# Safety Data Overview – Model Data

## OSHA Incidence Rate Versus Worker Hours of Exposure for Varying Numbers of Cases (200,000 to 500,000 Hours of Exposure)



# Initial Safety Data Benchmarking Questions

---

- ▶ **How important is proportionality?**
  - ▶ If 5 people are hurt how important is the size of the organization -- Versus --how important is it that the injuries occurred regardless of the size of the organization?
- ▶ **How important is comparability?**
  - ▶ Do small utilities want to compare to large utilities?
  - ▶ Do large utilities want to compare to small utilities?
  - ▶ Is comparison misleading because the rate varies?
- ▶ **Do we need a new benchmarking metric?**
  - ▶ Can we normalize to probability of incident over time?