



# **Incident Investigation: Learning from the Past to Prevent Future Accidents**

Ammonia Safety Day  
May 28, 2015



# Purpose of Chemical Accident Prevention Program

Develop multiple layers of protection, through planning, preparedness, and implementation of specific procedures, to prevent accidental releases of hazardous chemicals, and to reduce the impact of accidents that do occur

---



# Overview of Chemical Accident Prevention Program

- Determine who could be affected
  - Gather information
  - Identify hazards
  - Develop strategies to manage hazards
  - Train employees
  - Address what to do in case of emergencies
  - Learn from past issues to strengthen program
-



# Why Investigate Incidents?

- An accidental release often indicates a failure of the accident prevention program
  - Near-misses are a chance to identify what could have been a failure of the accident prevention program without having the consequences of an accidental release
  - If the accident prevention program has a weak spot, this needs to be fixed!
-



# What Incidents Should Be Investigated?

Each incident which resulted in, or could reasonably have resulted in a catastrophic release of a regulated substance

---



# Potential Accidents to Investigate

- Accidents on OSHA 300 log due to chemical release/exposure
  - Risk Management Program reportable accidents
  - Emergency Planning and Community Right-to-Know Act (EPCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) reportable releases
  - Incidents where Management of Change procedures were implemented
  - Near misses
-



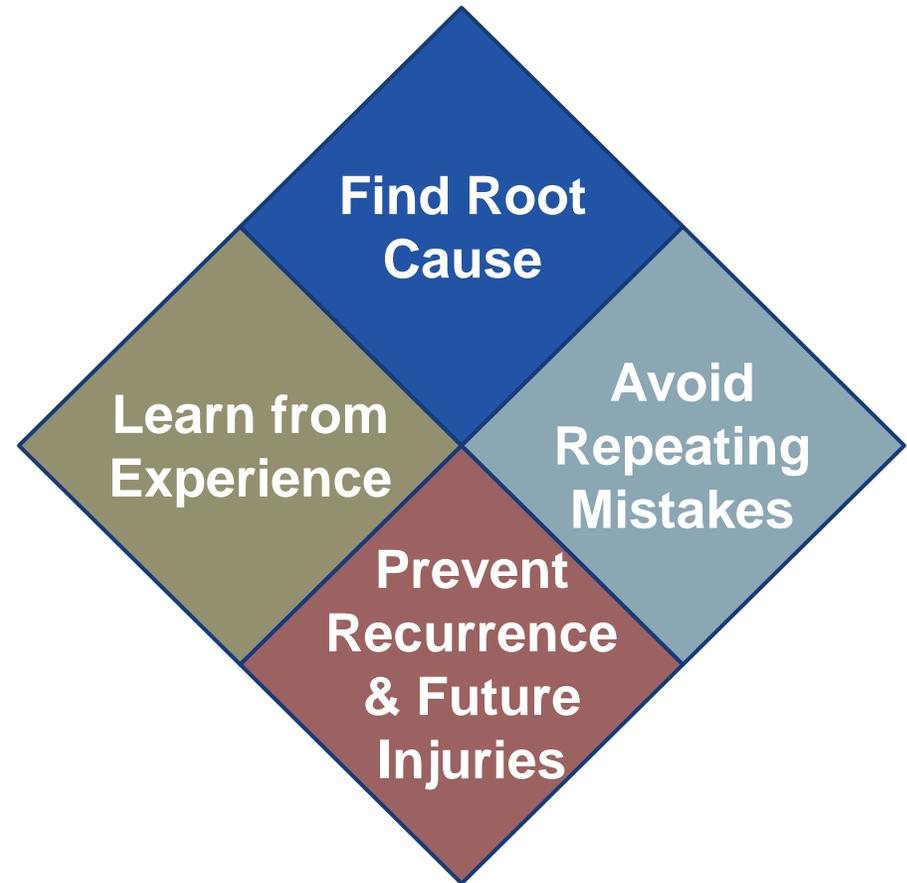
# Identifying Near Misses

- Any time an incident could have occurred, if only one (fortunate) thing hadn't happened
  - *Luck is not a prevention program*
  - "...and the safety systems were tripped"
  - "...it was fortunate that no one was in the area."
  - "...this same maintenance issue/safety valve relieving keeps happening"
-



# What is Incident Investigation?

- Process of identifying the underlying causes of incidents and implementing steps to prevent similar incidents from occurring.
- Intent is to learn from past experiences and avoid repeating past mistakes





# Incident Investigation Process

- Initiate investigation promptly, and no later than 48 hours post-incident
  - Establish knowledgeable investigation team
  - Summarize investigation in report
  - Address team's findings and recommendations
  - Review the report with staff and contractors
  - Retain the report
-



# Requirements for Incident Investigation Team

- Develop in-house capability to investigate incidents
  - Train team in techniques of investigating
  - Select team members based on training, knowledge, and ability to contribute
  - Include at least one person knowledgeable in the process involved
  - Include a contract employee if the incident involved work of the contractor
  - Include other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident
-



# Basic Elements of Investigation

1. Secure the accident scene
  2. Collect facts about what happened
  3. Develop the sequence of events
  4. Determine the causes
  5. Recommend improvements
  6. Write the report
-



# Incident Investigation Report

- Must include
    - Date of incident
    - Date investigation began
    - Description of incident
    - Factors contributing to incident
    - Recommendations resulting from the investigation
-



# Addressing Findings

- Owner or operator must promptly address and resolve the incident report findings and recommendations.
  - Resolutions and corrective actions shall be documented
-



# Sharing Report and Findings

- Must be reviewed with all affected personnel whose job tasks are relevant to the incident investigation findings, including contract employees where applicable
-



# Common Deficiencies

- Near misses not investigated
  - Investigation not started on time
  - Unresolved or undocumented findings/recommendations
  - Unreported incidents in 5-year accident history
  - Reports never finalized
  - Findings not discussed with affected employees/contractors
  - Investigation only cited equipment failure and/or human error as cause
-



# Is This An RMP Reportable Accident?

- RMP reportable accidents must involve the regulated chemical  
AND
  - Have specific on-site or off-site consequences
    - On-site OR off-site death or injury, or significant property damage
    - Off-site evacuation, shelter-in-place, environmental damage
  - But...there is not a threshold amount of chemical that must be released
-



# Reporting Accidents

- Report under CERCLA/EPCRA if more than a reportable quantity is released, regardless of consequences of the release

**Ammonia RQ = 100 pounds**

- CERCLA – call NRC
  - EPCRA – contact ALL potentially affected LEPCs, SERCs, and TERCs
  - Call within 15 minutes of actual or constructive knowledge that RQ exceeded
-



## Other News from EPA

- Executive Order 13650 Improving Chemical Facility Safety and Security
    - Increased communication and collaboration between federal agencies (EPA, OSHA, DHS)
    - Resources for emergency response, first responders, and emergency planners
    - Anticipated that RMP rule may be updated in the next two years
    - <https://www.osha.gov/chemicalexecutiveorder/index.html>
  - Updates of IIAR Bulletins to standards
  - ANSI K61.1 (1999) superseded by CGA G-2.1 (2014)
-



# Region 7 LEPC/TERC Conference

August 6-8, 2015

Lied Lodge & Conference Center  
Nebraska City, NE

Tracks: Industry, HAZMAT, Transportation,  
LEPC Basics, Incident Command Case  
Studies

Keynote Speaker: Mike Callan

General Session Speaker: Frank Patterson

[www.lepc-terc-conference-r7.weebly.com](http://www.lepc-terc-conference-r7.weebly.com)





## For More Information

[www.epa.gov/oem/](http://www.epa.gov/oem/)

[www.epa.gov/region7/chemical\\_risk\\_prog/index.htm](http://www.epa.gov/region7/chemical_risk_prog/index.htm)

### **Today's Presenter**

Jodi Harper

harper.jodi@epa.gov

(913) 551-7483

---