



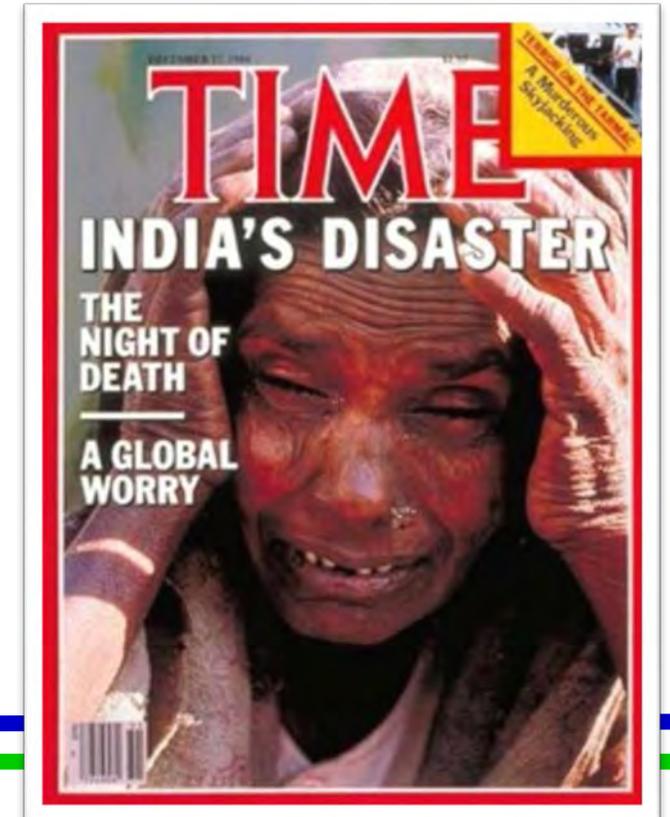
Risk Management Program Regulatory Updates

Nov. 2016



Union Carbide – Bhopal, India

- December 2, 1984
- One of the world's worst industrial catastrophes
- Massive release of methyl isocyanate gas from Union Carbide pesticide plant
- Killed 3,800 and injured tens of thousands





Union Carbide – Institute, West Virginia

- August 11, 1985
- Cloud of methylene chloride and aldicarb oxime released (used in pesticide manufacturing)
- Six workers injured; > 100 residents hospitalized
- Facility spent \$5M to improve safety systems; two more leaks occurred in February 1990





EPCRA Goals

- Tailor a chemical emergency program to community needs
- Provide public with “right-to-know” attitude and information
- Included
 - Formation of emergency planning framework
 - Facilities report
 - Inventories (Tier II)
 - Releases that are occurring (accidental and routine)

Industry involvement is key to a successful Local Emergency Planning Committee (LEPC)



From Response to Prevention

Clean Air Act (CAA) Amendments of 1990

- General Duty Clause (Section 112(r)(1))
- OSHA Process Safety Management (PSM)
- EPA Risk Management Program (Section 112(r)(7))
- Established Chemical Safety Board (CSB) to investigate incidents



Key to Accident Prevention

Utilize industry standards or recognized and generally accepted good engineering practices (RAGAGEP)





The General Duty Clause CAA 112(r)(1)

- No thresholds, no lists of regulated chemicals
- Facilities must
 - Identify hazards which may result in releases
 - Design and maintain a safe facility to prevent releases
 - Minimize consequences of releases that do occur
 - Coordinate with local responders



Elements of a Risk Management Program

- Management System
- Hazard Assessment
- Prevention Program
- Emergency Response Planning
- Risk Management Plan (RMP)
 - Submit to EPA via the Central Data Exchange (CDX)



Prevention Program Requirements

Program 2

- Safety information
- Hazard review
- Operating procedures
- Training
- Maintenance
- Compliance audits
- Incident investigation

Program 3

- Process safety information
- Process hazard analysis
- Operating procedures
- Training
- Mechanical integrity
- Compliance audits
- Incident investigation
- Pre-startup review
- Management of change
- Employee participation
- Hot work permit
- Contractor accountability



Typical Region 7 RMP Facilities - Agricultural Ammonia (75%)





Typical Region 7 RMP Facilities – Ammonia Refrigeration (10%)





Typical Region 7 RMP Facilities – Chemical & Petroleum Facilities (6%)





Typical Region 7 RMP Facilities – Water & Wastewater Treatment (4%)





Region 7 Top 5 Flammable & Toxic Chemicals Listed in RMPs

Flammable	Quantity (tons)
Flammable Mixture	2,709,230
Propane	1,749,697
Butane	923,661
Isobutane	293,405
Pentane	51,746

Toxic	Quantity (tons)
Anhydrous Ammonia	1,316,052
Chlorine	17,680
Chloroform	11,168
Ammonia ($\geq 20\%$)	3,216
Methyl Chloride	2,995



Risk Management Program Reportable Accidents

- **Not** based on the amount released
- Must include in the 5-year accident history in the RMP if accident resulted in:
 - Death
 - Injury
 - Significant property damage on-site
 - Off-site shelter-in-place, evacuation, environmental damage, property damage

	EPCRA 304 / CERCLA 103 Release	CAA 112(r) Accident	CAA 112(r) Incident Investigation
Trigger	Reportable quantity	<ul style="list-style-type: none"> No reportable quantity Involves a regulated substance from a covered process resulting in specified consequences 	Any incident that resulted in or had the potential to result in a catastrophic release. Could include <ul style="list-style-type: none"> EPCRA reportable releases RMP reportable accidents Event where nothing was released
Notes	Call <ul style="list-style-type: none"> Local Emergency Planning Committee State Emergency Response Commission National Response Center 	Considers consequences <ul style="list-style-type: none"> Deaths, injuries, hospitalization, property damage Off-site shelter-in-place, evacuation, environmental damage 	Determine causes and complete follow-up to prevent recurrence
When	Within 15 minutes	Update RMP within 6 months	Start within 48 hours



Quick Ways to Be Added to Our Inspection List

- Have accidents or releases, especially where
 - Anyone needs treatment or dies
 - Public is impacted
 - Significant off-site environmental impact
- Miss a five-year RMP submittal update
- Have >10,000 lbs. ammonia and no RMP – (Non-filer)
- Deregistered facilities appear active (Google Earth Maps)





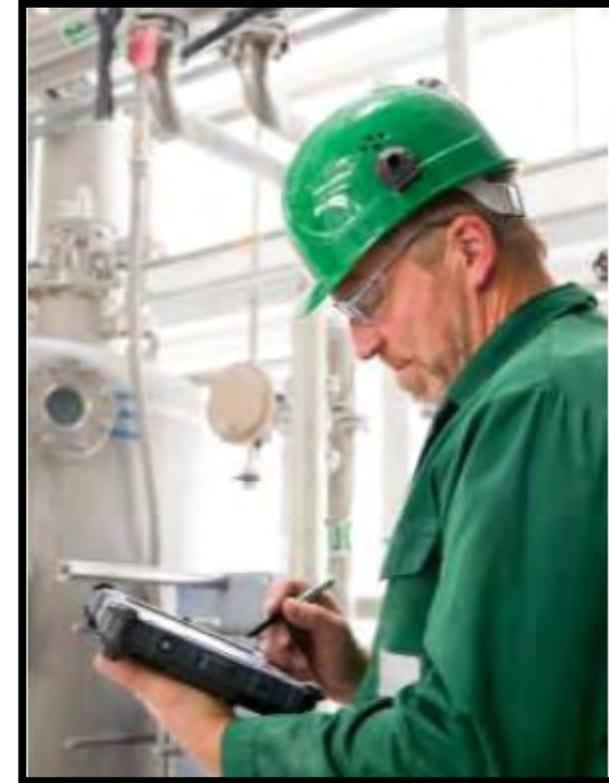
Notification of Inspection

Advanced notification of inspection is not required



Our Inspection Process

- Arrival
- Opening Conference
- Document Review
- Facility Walk-Through
- Inspector takes time to make preliminary findings
- Closing Conference





Typical Documents Reviewed

- RMP (and documents supporting dates referenced in RMP), EPCRA Tier II report, OSHA 300 log, Offsite Consequence Analysis documentation, emergency response documents
- Bulk of time spent on prevention program elements
 - Safety information
 - Hazard review (report and tracking)
 - Maintenance (tests/inspections/work orders)
 - Compliance audits (report and tracking)
 - Incident investigations (report and tracking)
 - Operating procedures
 - Training



Facility Walk-Through

- Usual part for employee representative participation
- Compare physical plant to current industry standards/codes/RAGAGEP and Risk Management Program documents
- Take photos of the condition of the equipment
- Ask employees questions



Post Inspection - Inspectors

- Contact Local Emergency Planning Committee (LEPC) (toxics) or fire department (flammables) related to emergency response planning
- Request additional information from facility after further review of documents
- Write report



Common Findings and Program Implementation Tips



Issues Cited Relating to Safety Information 40 CFR 68.48 (68.65)

- Utilize **current** Safety Data Sheet
- Document maximum inventory, temperatures, pressure, flow and composition
- Document equipment specifications
- Ensure the process is designed in compliance with recognized and generally accepted good engineering practices (RAGAGEP)

Most common Region 7 citations – nearly 75%



Industry Standards Citations at Region 7 Facilities





Industry Standards Citations at Region 7 Facilities (cont.)

- Expired pressure relief valves or hoses
- Tests or internal/external inspections not conducted timely
 - Pressure vessels
 - Underground piping





Common Process Hazard Analysis (PHA) Deficiencies

- Industry standard(s) not reviewed since the facility was designed/built (i.e., “grandfathered”)
- Analysis has not been reviewed/update at least every five years
- Analyses overly generic
 - Needs to be specific to facility and account for process changes
 - Ensure that accidents and near misses that have occurred at the facility are considered
- PHA findings are not resolved, not documented, not tracked
 - Same findings show up during the next analysis



Common Operating Procedure Deficiencies

- Failure to have all of the required procedures
 - Note in documents if an operating scenario is not needed (i.e. no temporary operation needed for facility)
- Failure to annually certify
- Failure to include operating limits and consequences of deviation in operating procedures



Common Mechanical Integrity (MI) Deficiencies

- No written mechanical integrity procedures
- Equipment not inspected or tested
 - Testing/inspection interval doesn't meet industry standards
- Failure to follow-recognized and generally-accepted good engineering practices
 - Proactive relief valve & hose replacement
 - Painting cracked/missing
- No plan for replacing equipment when it fails
- Failure to consider piping, particularly underground piping



Common Management of Change (MOC) and Pre Startup Safety Review (PSSR) Deficiencies

- Failure to follow “replacement in kind”
 - A change in the original equipment manufacturer (OEM) specs is a change
- MOC/PSSR process not complete prior to change
 - ***MOCs/PSSRs should not be after-the-fact paperwork***
- Safety Information, Operating Procedures, etc., not updated accordingly



Common Incident Investigation Deficiencies

- “Near misses” not investigated
- Unresolved or undocumented findings/recommendations
- Unreported incidents in 5-year accident history
- Reports never finished due to liability concerns
- Findings not discussed with affected employees/contractors (or no documentation of the communication exists)



Incident Investigation – Red Flag

Investigation's only finding was equipment failure and/or human error at fault

Did the investigation get to the true root cause?



Issues Cited Relating to Compliance Audits 40 CFR 68.58 (68.79)

- Not completed every 3 years
 - Play inspector for a day
 - Consider changes at facility and in industry standards
 - Are you doing what you say you are doing?
 - Operating Procedures
 - Maintenance
- Not certified

Second most common citations for Region 7 facilities



Facility Coordination with Emergency Response Agencies

- How does a facility coordinate?
- Do local emergency response agencies have the capability to respond?

Ultimately, the facility is responsible for minimizing the consequences of accidents that do occur.



Industry and LEPCs

- An accidental release should not be the first time local emergency responders and facility personnel meet
- Industry is a vital member of the LEPC
 - Offer to host a meeting
 - Offer to conduct a tour or host an exercise
 - Offer to take leadership role



Potential Enforcement Outcomes

Closure of case/compliance

Compliance assistance letter

Notice of Noncompliance (NON)

Administrative Order

Expedited Settlement Agreement (ESA)

Administrative Civil Complaint

Judicial Civil Complaint (DOJ cases)

Criminal Charges (handled by CID)



Butterball, LLC. (Carthage, Mo.) - NON

- Initiating activity: CAA 112(r) inspection conducted in 2010
- Issue identified: no annual certification of operating procedures
- Results: Notice of Noncompliance
- No penalty





Ackley Fertilizer Sales (Ackley, IA) - ESA

- Initiating activity: CAA 112(r) inspection 2015
- Citations:
 - inadequate pipe supports & hazard review
 - compliance audit
 - facility not in community emergency plan
 - RMP did not include accurate emergency contact info and was not revised/updated every five years
- Results: Expedited Settlement Agreement (ESA)
- Penalty: \$4,800
- Penalty filed within 6 months of the inspection





Fluoro-Seal International, L.P. (cont.)

- Violations
 - None of the facilities had a fully developed program or filed an RMP
 - Aluminum oxide pellets not reported on Tier II reports
- Settlement
 - Pay a civil penalty of \$59,000
 - Spend a minimum of \$180,000 on Supplemental Environmental Project (SEP)
 - five facilities will modify process to recycle hydrogen fluoride
 - Will reduce the amount of residual hydrogen fluoride directed to the aluminum oxide scrubbers



Tyson (23 facilities) - DOJ

- Initiating events:
 - 8 separate releases between 2006 & 2010
 - Multiple injuries and 1 fatality
 - Inspections at 6 facilities from 2008-2009
 - 3 information requests from 2010-2011
 - Federal and state OSHA inspections
- Key Issue: Not following RAGAGEP
 - Boiler co-located in ammonia machinery room
 - Relief valve replacement
 - Schedule 40 piping < 2" diameter
 - Ammonia sensors in machine room





Tyson (cont.)

- Results: DOJ referral, judicial civil complaint
- Settlement
 - \$3.95M penalty
 - \$300,000 SEPs
 - Injunctive relief at 23 facilities
 - Third-party audit of Risk Management Program
 - Included audit of RAGAGEP
 - Non-Destructive Testing on key piping < 2" diameter



Lessons from West, Texas

- Better Coordination
- Regulatory Oversight
- Hazard Awareness
- Emergency Planning and Response
- Fertilizer Grade Ammonium Nitrate Storage
- Land Use Planning and Zoning
- Executive Order 13650 Issued

<https://youtu.be/pdDuHxwD5R4>





Region 7 EO 13650 Workgroup Formed to Improve Coordination & Information Sharing

- Representatives include OSHA, DHS, EPA, DOT, and state emergency response, environmental, and safety/security agencies
- Bi-monthly conference calls
- Annual in-person meetings





Developed EPA/DHS/OSHA Inspection Priority List EPA's Top 10 Inspection Priorities Include Facilities that:

- Had a chemical release that
 - Caused injury (above first aid), or
 - Went off-site, or
 - Oil reached a water body
- Need to develop a program and file an RMP but haven't
- Have poorly maintained equipment and/or poor chemical housekeeping
- Have chemical staining, spillage, dumping, burial





EPA's Top 10 Inspection Priorities Include Facilities that (cont.):

- Have leaking vessels/containers and no action being taken
- The appearance of dumping untreated waste/chemicals down drains, storm sewers, or waterways
- More than 500 pounds anhydrous ammonia, 100 pounds chlorine gas, or 10,000 pounds any chemical and local responders do not know its there
- No emergency procedures/plan in event of chemical spill
- Significant tankage of oil/petroleum without secondary containment
- Visual dense smoke or dust (not steam) leaving facility



Modernization of the Risk Management Program Rule

Details found at: <http://www.epa.gov/rmp/proposed-changes-risk-management-program-rmp-rule>

Proposed revisions include

- Third Party Audits
- Incident Investigations and Root Cause Analysis
- Safer Technology Alternatives Analysis
- Local Coordination
- Emergency Response Exercises
- Information Sharing to LEPCs
- Increasing Access to Existing Public Information



Emphasis on Making Improvements After Incidents and Accidents



- Root cause analysis required as part of incident investigations
- Independent third-party contractor required to conduct compliance audit after facility has reportable release



Moving Forward

- Public comment period ended May 13
- It is now with the Office of Management and Budget (OMB) – they have 90 Days to review
- EPA Headquarters hopes to publish final rule during the current administration
- Region 7 will provide outreach once rule is finalized

Get involved with your LEPC - Industry involvement is key to a successful LEPC



You are Invited!

LEPC/TERC Emergency Planning and Response Conference

July 20-22, 2017

Doubletree Hotel
Overland Park, KS

Contact Patricia Reitz (reitz.patricia@epa.gov) or Terri Blunk (blunk.terri@epa.gov) for more information





Resources

- EPA EPCRA website: <https://www.epa.gov/epcra>
- EPA Risk Management Program website: <https://www.epa.gov/rmp>
- EPA Emergency Response website:
<https://www.epa.gov/emergency-response>
- The Right to Know Network website: <http://www.rtknet.org/db/rmp>



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