

Risk Management Plan Accident History Analysis 1994-2016 EPA Region 7



July 2017

Today's Agenda



- Introduction
- Brief regulatory background
- What accidents are reportable
- What facilities are submitting RMPs
- Region 7 Accident Data
 - As reported on Region 7 RMPs submitted through 5/1/2017

July 2017

R7 LEPC/TERC Conference

What is the Risk Management Program?



- Management System
- Hazard Assessment
- Accident Release Prevention Program
- Emergency Response Program
- ***Risk Management Plan (RMP)***
 - ***Section 6: 5 Year Accident History***

July 2017

R7 LEPC/TERC Conference

What Accidents are RMP Reportable?



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

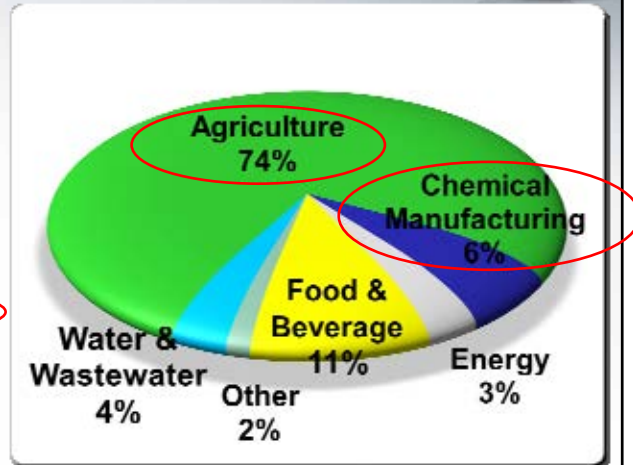
July 2017

R7 LEPC/TERC Conference

RMPs Submitted as of July 2017



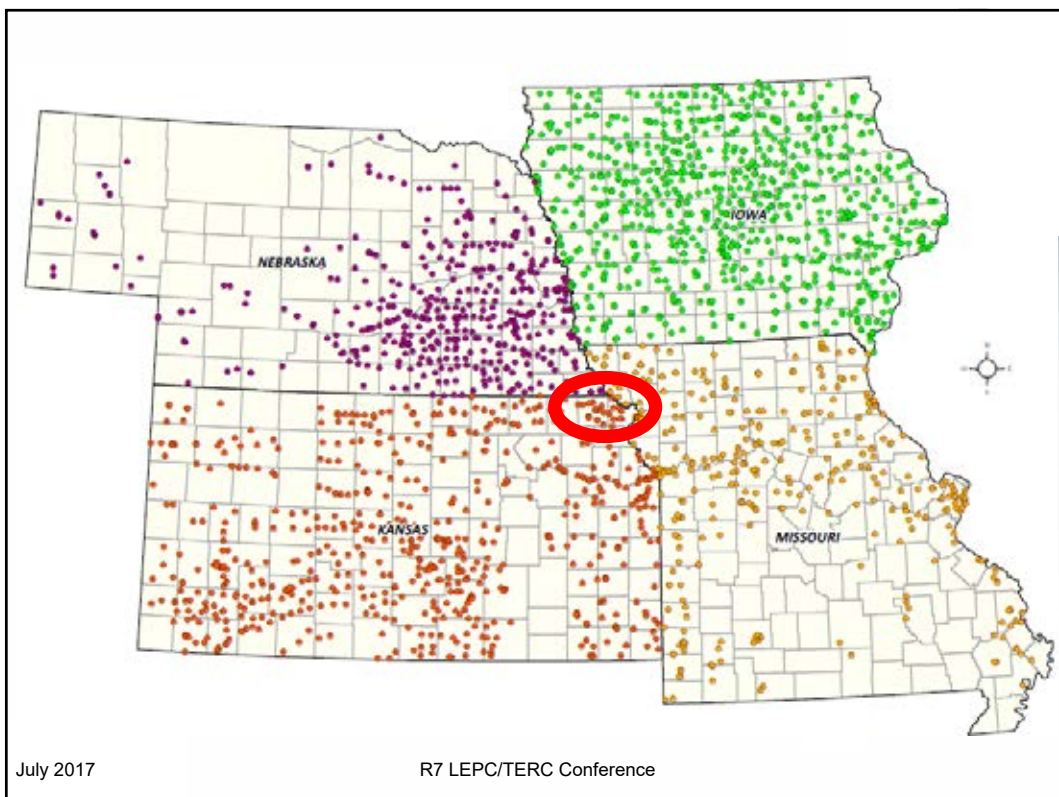
- 845 in Iowa
- 641 in Kansas
- 368 in Missouri
- 446 in Nebraska
- **2,300 in Region 7 (R7)**



Region 7 comprises approx. 19% of U.S. total RMPs filed

July 2017

R7 LEPC/TERC Conference



July 2017

R7 LEPC/TERC Conference

What is an “Accident”?

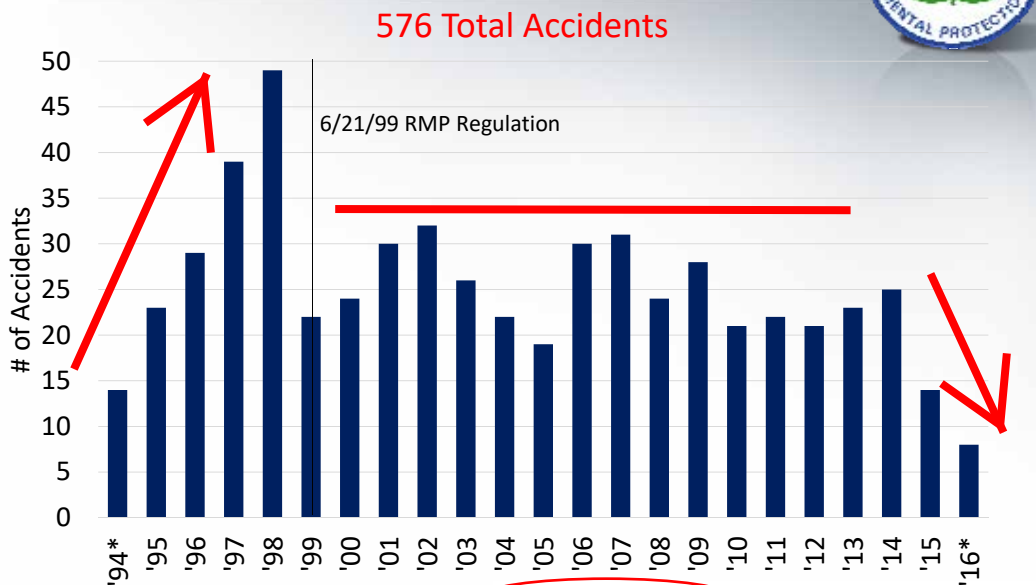


- A facility must report in their RMP any release that
 - causes on-site deaths, injuries, or significant property damage; or,
 - causes off-site deaths, injuries, medical treatments, hospitalizations, environmental damage, evacuations, or sheltering in place.
- RMP must be updated within 6 months

July 2017

R7 LEPC/TERC Conference

Number of RMP Accidents in R7 June 1994 – December 2016



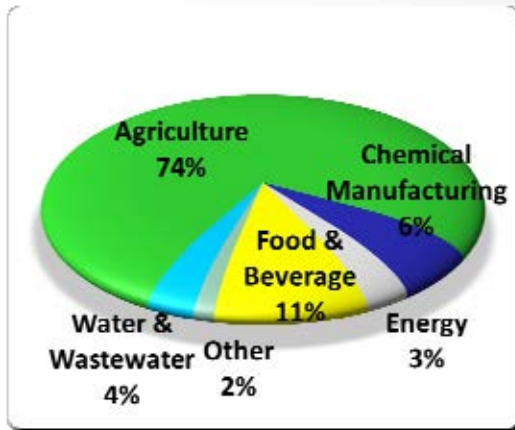
July 2017

R7 LEPC/TERC Conference

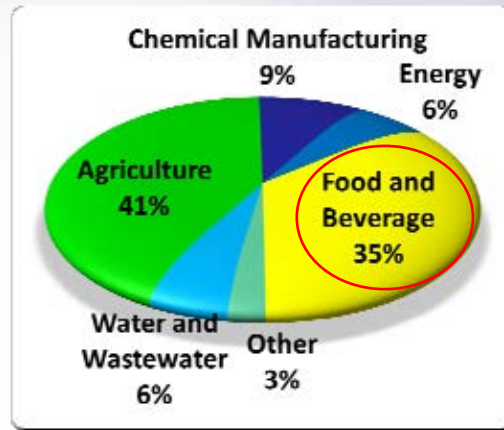
R7 Risk Management Program Facilities and Accidents



RMPs



RMP Accidents



July 2017

R7 LEPC/TERC Conference

Chemicals Involved in Accidents

Chemical	# Accidents	% of Accidents	Chemical	Total # lbs Released	% of Total lbs Released
Ammonia (anhydrous)	446	75.1	Ammonia (anhydrous)	8,309,525	94.5
Chlorine	47	7.9	Flammable Mixture	333,709	3.8
Flammable Mixture	17	2.9	Chlorine	54,883	0.6
Hydrofluoric acid (>=conc 50%)	11	1.9	Sulfur dioxide (anhydrous)	16,200	0.2
Propane	10	1.7	Butane	15,079	0.2
Ammonia (conc 20% or greater)	8	1.3	Hydrofluoric acid (>=conc 50%)	13,269	0.2
Dimethylamine	6	1.0	Dimethylamine	9,538	0.1
Methane	6	1.0	Propane	8,881	0.1

46 railcars
18,000 # / accident

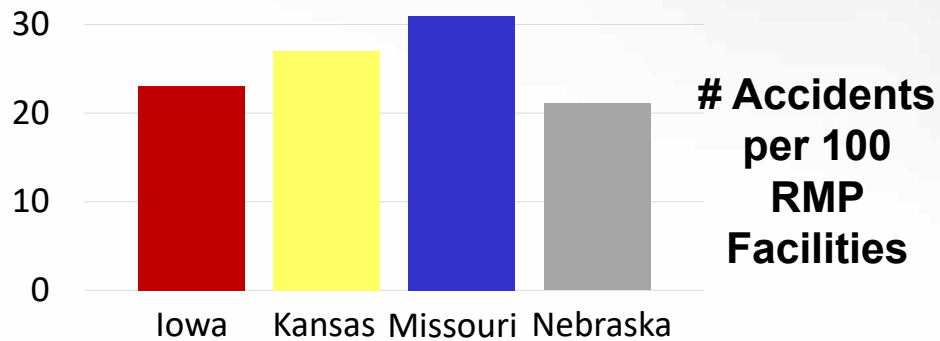
1/3 of one railcar
1,000 # / accident

July 2017

R7 LEPC/TERC Conference

How the States Compare

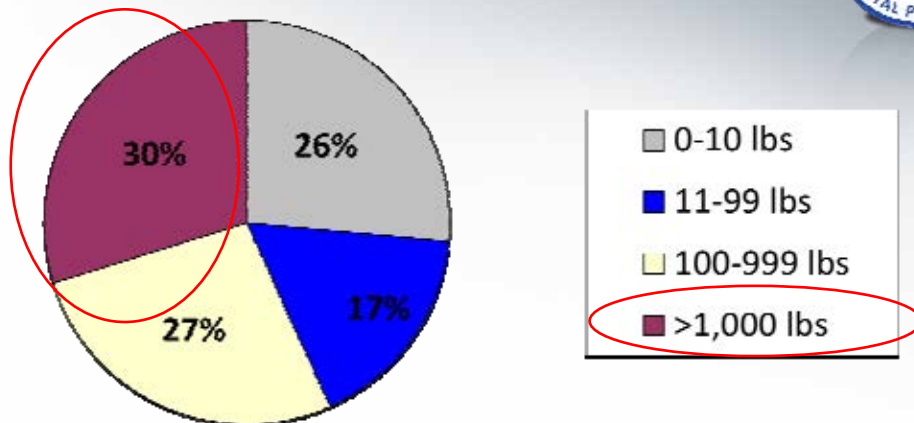
	# Accidents	% R7 Accidents
Iowa	195	33.9
Kansas	173	30.0
Missouri	114	19.8
Nebraska	94	16.3



July 2017

R7 LEPC/TERC Conference

RMP Ammonia Accidents in R7

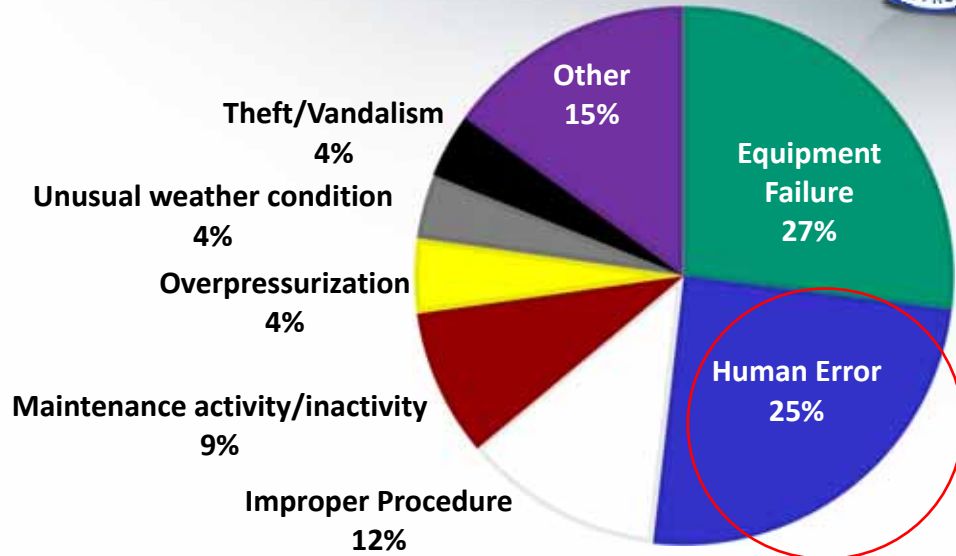


CERCLA/EPCRA federal reportable quantity
 ≥ 100 pound release = calls to NRC, TERC, SERC, LEPC

July 2017

R7 LEPC/TERC Conference

Contributing Factors in Region 7



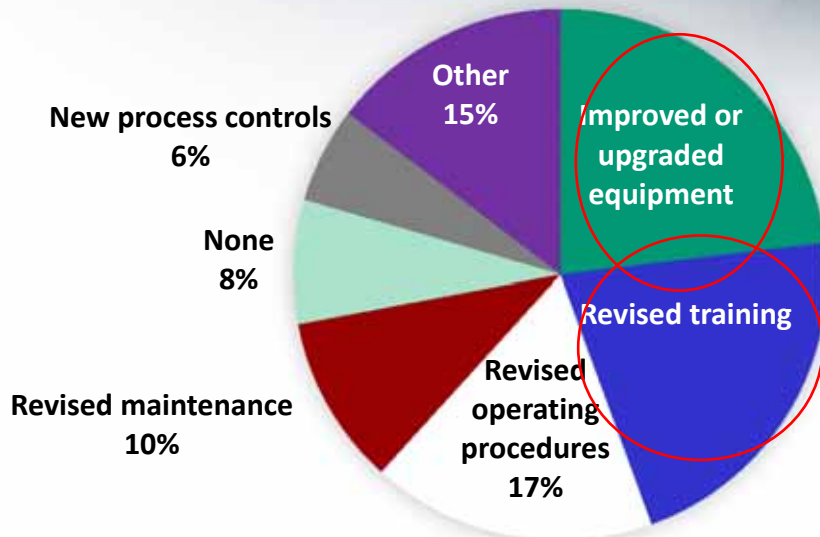
July 2017

R7 LEPC/TERC Conference

Changes Made in Region 7



Changes were introduced after >99% of R7 accidents



July 2017

R7 LEPC/TERC Conference

1994-2016 R7 Accident History Data...



- 525 total on-site injuries
- 82 total evacuations involving >8,500 off-site individuals
- Property damage
 - On-site >297 million dollars
 - Off-site >3.3 million dollars
- Approx. 15% of accidents resulted in off-site environmental damage
- 87% of facilities made changes to prevent future accidents

avg 100 persons
per evacuation

July 2017

R7 LEPC/TERC Conference

EPA/DHS/OSHA Inspection Priority List EPA's Top 10 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



July 2017

R7 LEPC/TERC Conference

EPA's Top 10 Priorities (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

July 2017

R7 LEPC/TERC Conference

Who to Contact with Questions/Concerns



State Emergency Response Commission Contacts

Iowa – Tracey Epps; 515-725-3297; tracey.epps@iowa.gov

Kansas - David Whitfill; 785-274-1394; david.j.whitfill.nfg@mail.mil

Missouri – Paul Kirchhoff; 573-526-9237;

paul.kirchhoff@sema.dps.mo.gov

Nebraska – James Rashilla; 402-471-7176;

James.rashilla@nebraska.gov

CORP State Coordinators

Iowa: Krystal Stotts; (913) 551-7946; stotts.krystal@epa.gov

Kansas: Fatima Ndiaye; (913) 551-7383;

ndiaye.fatimatou@epa.gov

Missouri: Dave Hensley; (913) 551-7768; hensley.dave@epa.gov

Nebraska: Terri Blunk; (913) 551-7013; blunk.terri@epa.gov

July 2017

R7 LEPC/TERC Conference

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>
- Right-to-Know Network website: <http://www.rtknet.org/db/rmp>

Your Presenter:

Terri Blunk

Outreach Coordinator, Nebraska State Coordinator

Chemical & Oil Release Prevention Branch

blunk.terri@epa.gov, (913) 551-7013

Questions?



EPA Region 7 Accident Investigations

July 2017



Today's Agenda

- On-scene coordinator's role
- Coordination
- Region 7 accident investigations
- General Duty Clause CAA 12(r)(1)
- Chemical Accident Prevention Provisions -
Risk Management Program Rule CAA 11(r)(7)
- Comparison of EPA's and OSHA's CAA provisions
- Chemical Safety Board



On-Scene Coordinator (OSC)

- Federal officials responsible for monitoring or directing responses to releases reported to the federal government
- EPA or the U.S. Coast Guard, depending on where the incident occurs
 - Assessment
 - Monitoring
 - Response Assistance
 - Evaluation



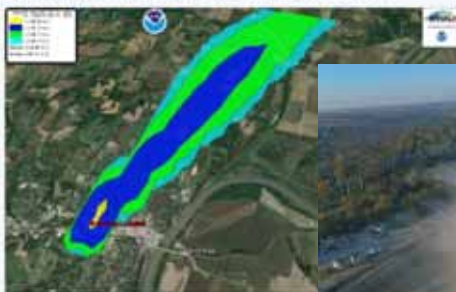
Chemical Cloud in Atchison KS, 10/21/2016,
www.kshb.com/news/news-photo-gallery/photos-major-chemical-spill-reported-in-atchison-kan



Coordination

Local officials, state agencies, EPA personnel, and federal agencies

NWS Kansas City @NWSKansasCity 10m
Dangerous chemical spill in Atchison, KS.
Here is where our model projects
chemicals will spread through 11:30



National Weather Service Kansas City, Map of Chemical Cloud in Atchison KS,



Chemical Cloud in Atchison KS
10/21/2016
www.kshb.com/news/news-photo-gallery/photos-major-chemical-spill-reported-in-atchison-kan

MORE THAN 80 HOSPITALIZED AFTER CHEMICAL INCIDENT



Region 7 Accident Investigations Clean Air Act (CAA) Amendments of 1990

Purpose: Prevent and mitigate accidental releases

- 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



Region 7 Accident Investigations

- CAA Section 114 information requests
- CAA 112(r) on-site inspections
- CERCLA 104 information requests (chemical release questionnaires)

Often include a call or email to
the impacted LEPC or responders

- Was the LEPC notified?
- Did any concerns arise during
the incident?



Fire at JACAM, 4/13/2017, The Hutchinson News
www.hutchnews.com/7ebb2535-f180-5083-9825-5038cda539ab.html



Region 7 Accident Investigations

- CAA 112(r)(1)
General Duty Clause
- CAA 112(r)(7)
Chemical Accident
Prevention Provisions -
Risk Management
Program
- Reporting Provisions of
the EPCRA and CERCLA



Airosol Fire, 11/22/2016

www.newson6.com/story/33769638/plant-explosion-reported-near-independence-kansas



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

Factsheet: www.epa.gov/rmp/general-duty-clause-fact-sheet



Chemical Accident Prevention Provisions Risk Management Program Rule 40 CFR 68

- 258 Substances
www.epa.gov/rmp/list-regulated-substances-under-risk-management-plan-rmp-program
- Facilities with threshold amounts are required to
 - Develop a management system
 - Conduct a hazard assessment
 - Develop a prevention program
 - Plan for emergencies
 - Submit a Risk Management Plan (RMP)



Chemical Accident Prevention Provisions Emergency Planning

How does the facility respond to a release of the regulated substance?

- They don personal protective gear and reenter the hot zone to actively stop the release or fight the fire
 - Answer all the questions in Section 9 of the RMP
 - Develop emergency response program/plan per 40 CFR 68.95
 - Coordinate with local first responders
- They rely on local first responders
 - Answer only questions 9.1a, 9.1b, 9.7a, 9.7b, and 9.8 of the RMP
 - Develop Emergency Action Plan
 - Coordinate with local first responders



Comparing EPA's and OSHA's CAA Provisions

- PSM at 29 CFR 1910.119 focuses on worker protection
 - Essentially equivalent to prevention program 3 in EPA's rule
- EPA at 40 CFR 68 focus extends to off-site protection of human health and the environment
 - Also includes management system, hazard assessment, emergency planning, RMP submittal
- EPA has 27 chemicals not listed in PSM
- PSM has 79 chemicals not listed by EPA
- Most of EPA's threshold quantities are higher than PSM's
- EPA tends to have lower concentration requirements

OSHA TERM	EPA TERM
Highly Hazardous Chemical	Regulated substance
Employer	Owner or operator
Facility	Stationary source
Standard	Rule or part

July 2017

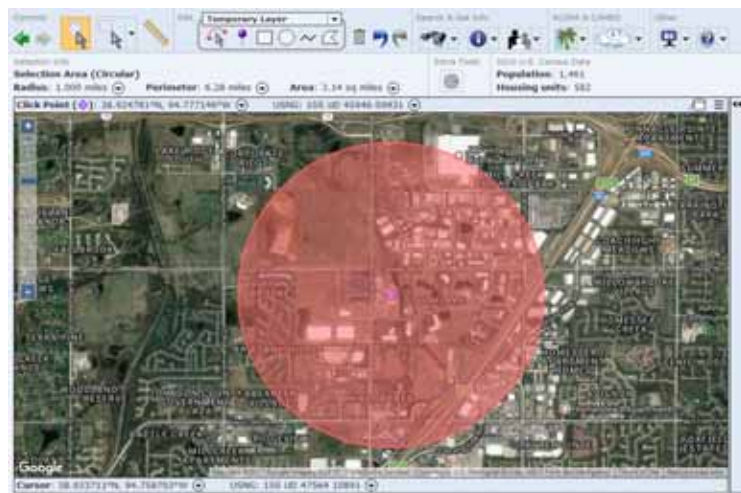
2017 R7 LEPC/TERC Conference

11



Comparing EPA's and OSHA CAA Provisions Main Difference for Emergency Responders

Off-site
Consequence
Analysis



July 2017

2017 R7 LEPC/TERC Conference

12



Chemical Safety Board CAA 112(r)(6)
www.csb.gov

- Independent federal board charged with investigating industrial chemical accidents
- Does not issue fines or citations
 - Makes recommendations to facilities, regulatory agencies (such as to OSHA and EPA), industry organizations, and labor groups
- Conducts root cause investigations of chemical accidents at fixed industrial facilities
 - Has found inadequate or poor emergency planning or response to be a root cause for 14 incidents



The Hutchinson News



.com MORE THAN 80 HOSPITALIZED AFTER CHEMICAL INCIDENT

4 NEWS



www.kshb.com

Questions?



EPA National Accidental Release Information:

FY 2012 – 2016

Over Thirty Years of Collecting Release / Spill Information

8/1/2017

Page 1

NRC BACKGROUND :: Primary function of NRC is to serve as sole national point of contact for reporting all oil, chemical, radiological, biological, and etiological discharges into the environment.

In addition to gathering and distributing spill data for OSCs and serving as operations and communications center for NRT, NRC maintains agreements with a variety of entities to make notifications regarding incidents meeting established trigger criteria.

NRC also takes Terrorist/Suspicious Activity Reports and Maritime Security Reports.

On behalf of DHS and the USCG, the NRC:

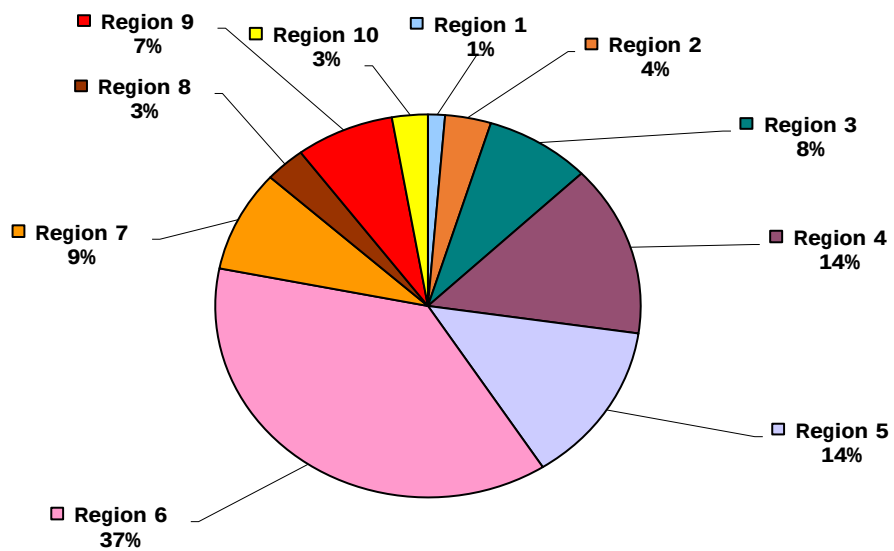
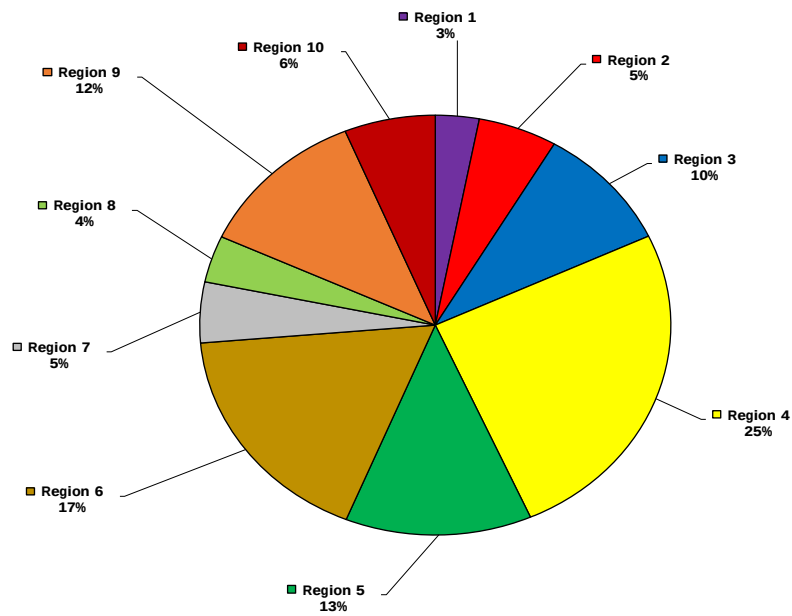
- Briefs the White House, Office of Homeland Security, Secretary of Transportation, and Chiefs of Modal Administrations regarding all significant transportation emergencies;
- Provides information the Coast Guard's Office of Marine Safety, Security, and Environmental Protection as needed;
- Receives and relays reports of incidents reportable under the Hazardous Materials Transportation Act;
- Provides incident reports to various DOT agencies;
- and provides notification to DOT and NTSB offices of transportation incidents that meet certain criteria.

On behalf of other Agencies, the NRC provides services to enhance the Federal Response System:



- For EPA, NRC receives incident reports under FRS which is supported under CERCLA, CWA, CAA, EPCRA, and OPA. NRC disseminates reports of oil discharges and chemical releases to OSC;
- For FEMA, NRC acts as a 24 hour contact point to receive earthquake, flood, hurricane, and evacuation reports;
- For NucRC, and DOE, NRC makes notification of all incidents involving radioactive material releases;
- For DOI, NRC receives reports of incidents involving Trans-Alaskan Pipeline Oil;
- For DOD, incidents involving transportation emergencies with DOD munitions or explosives are referred to tArmy Operations Center. Any incident involving hypergolic rocket fuels and oxidizers are passed to the Air Force Operations Center.
- NRC takes reports on potential or actual domestic terrorism and coordinates notifications and response with FBI;
- For DHHS, releases of etiological and biological agents are referred to the CDC;
- For FRA, NRC takes reports of railroad incidents involving hazardous materials, crossing fatalities, and accidents resulting in injury/death of employees.
- NRC is contact point for activation of NRT and provides facilities for NRT to use in coordinating national response action when required.

Page 2



NRC Notifications to EPA (2001 -- 2016)

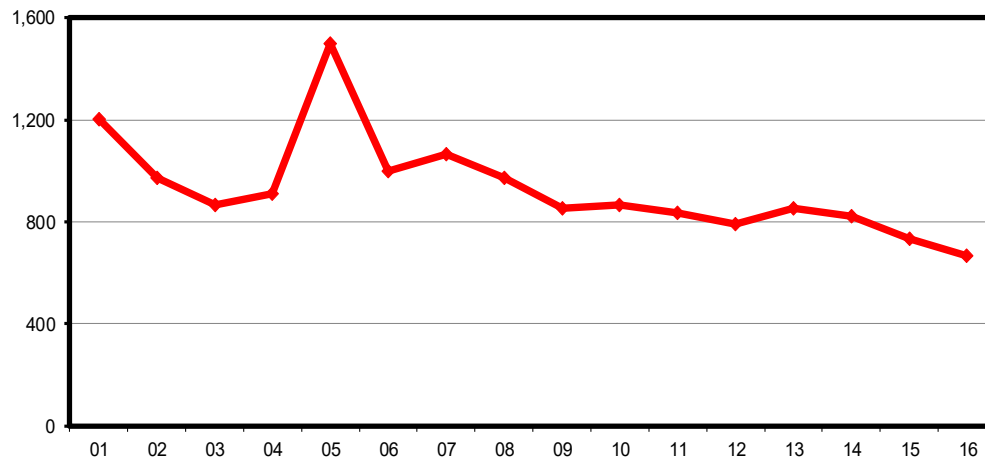
8/1/2017



Page 5

NRC Notifications to EPA Region 07 (2001 - 2016)

8/1/2017

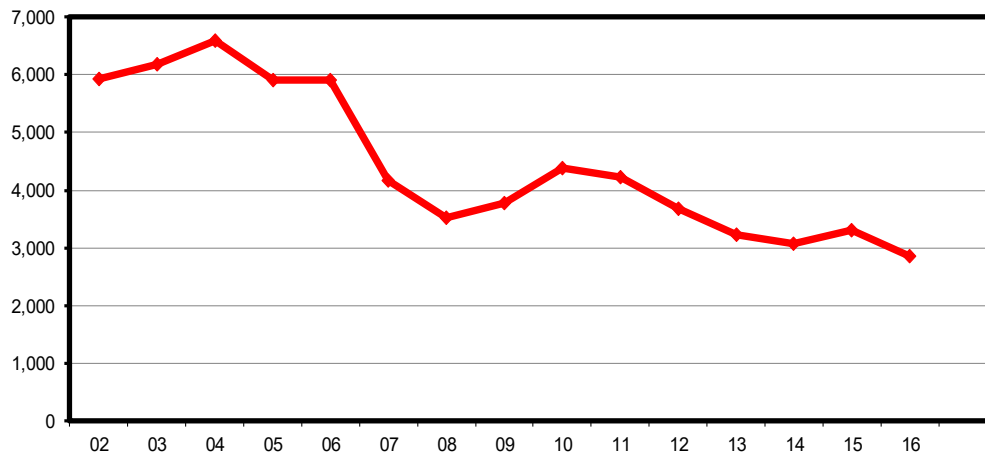


	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
EPA Notifications	1,203	974	868	909	1,498	1,000	1,065	972	853	866	836	790	855	821	732	667

Page 6

NRC Notifications to EPA Region 6 (1982 - 2016)

8/1/2017

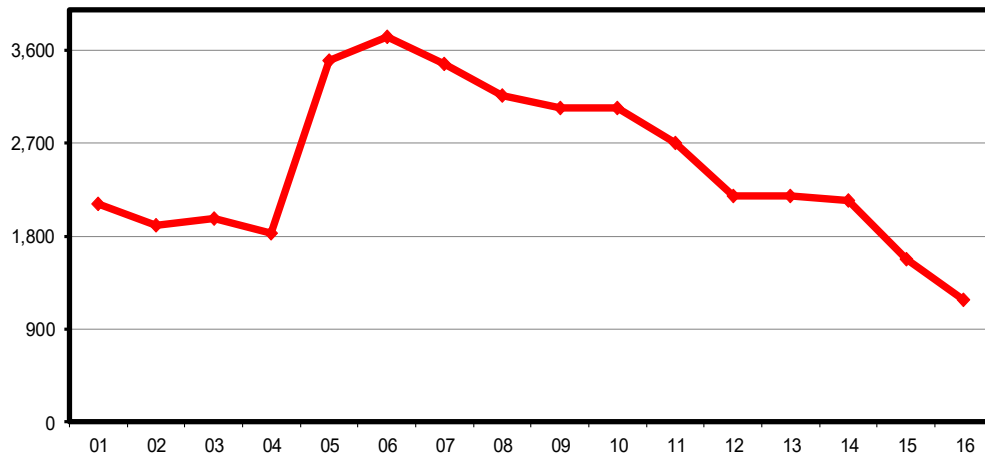


		82	83	84	85	86	87	88	89	90	91	92	93	94	95	
EPA Notifications		1,315	1,520	1,521	1,920	2,196	2,057	2,142	3,152	4,591	3,784	4,208	4,340	5,063	5,180	
96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12
4,376	4,277	4,472	4,559	4,641	6,428	5,926	6,176	6,590	5,898	5,910	4,167	3,529	3,775	4,388	4,219	3,676
13	14	15	16													
3,220	3,075	3,302	2,860													

Page 7

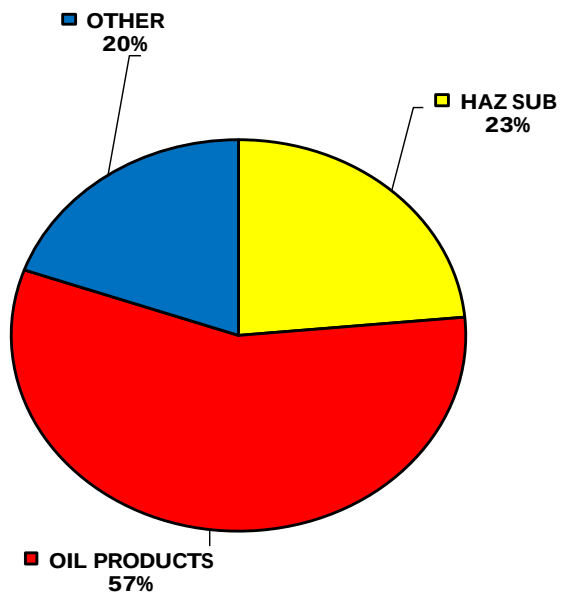
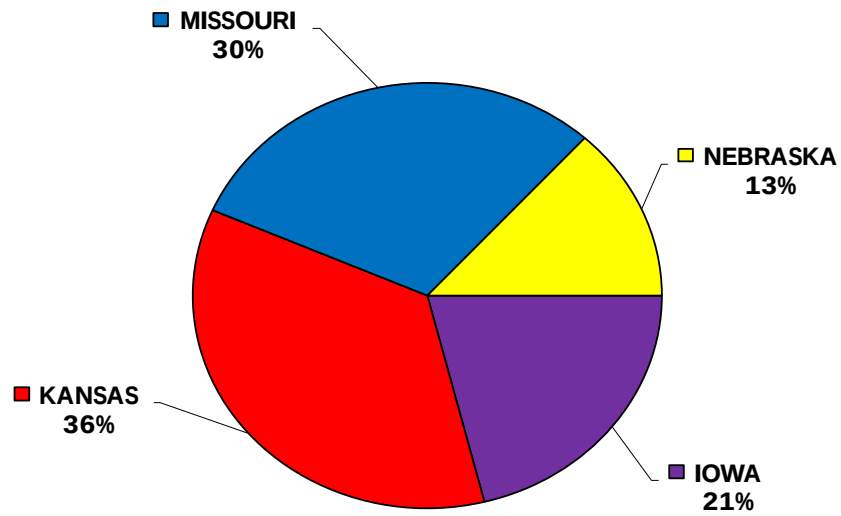
NRC Notifications to EPA Region 09 (2001 - 2016)

8/1/2017

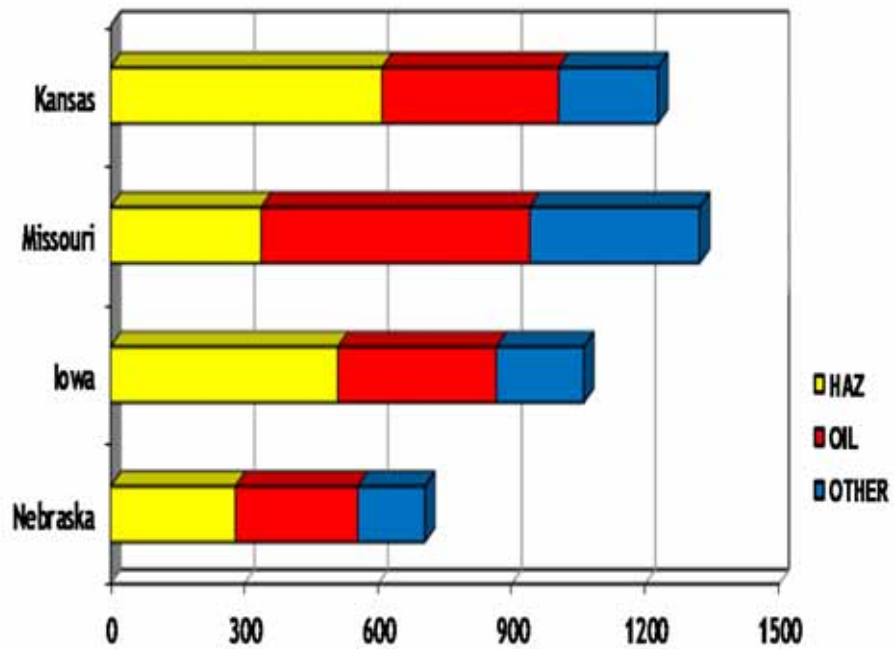
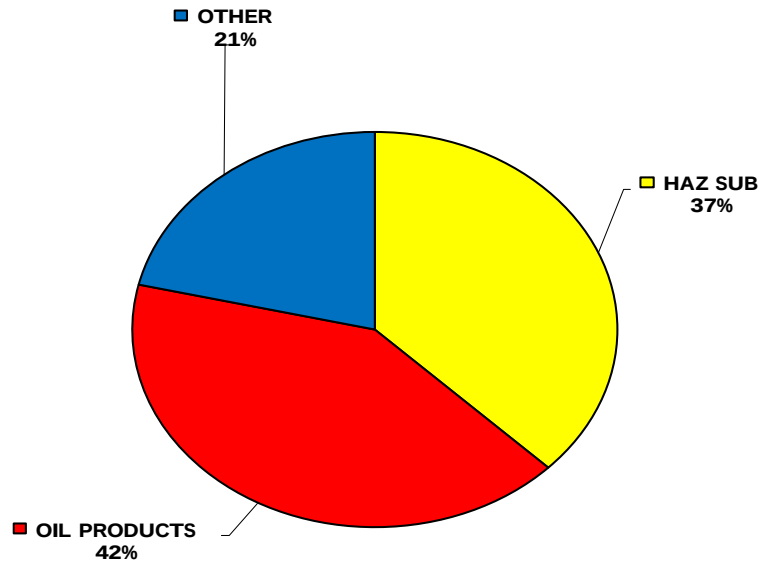


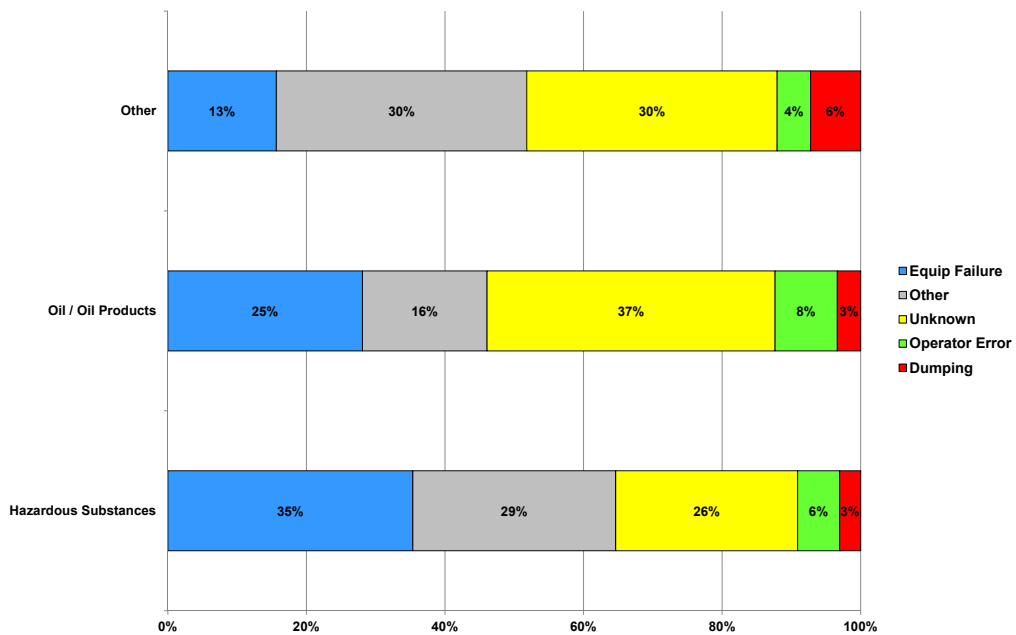
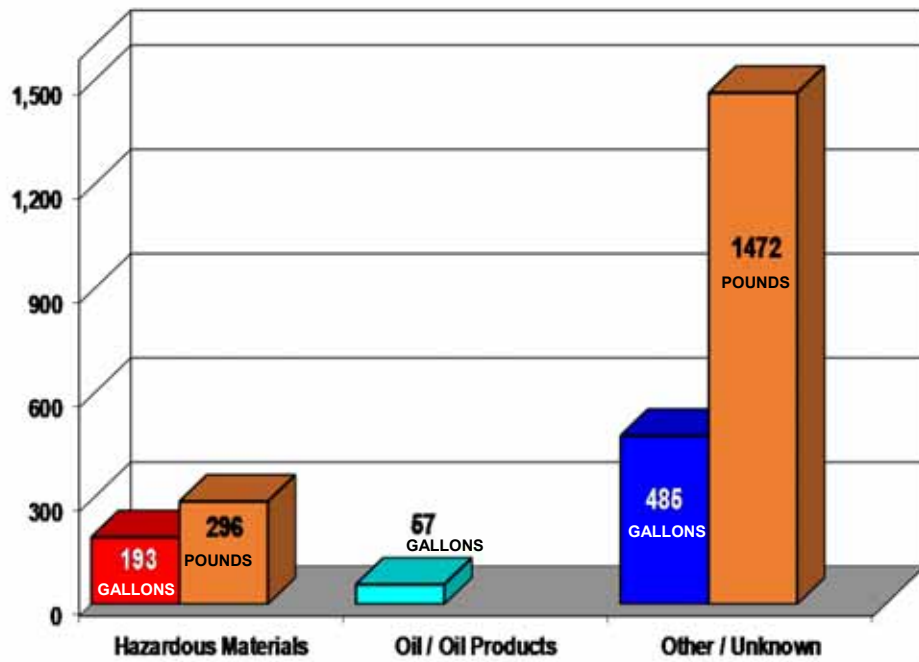
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
EPA Notifications	2,119	1,909	1,977	1,831	3,503	3,733	3,470	3,160	3,045	3,049	2,702	2,189	2,191	2,147	1,575	1,187

Page 8



HAZ SUB: CERCLA Hazardous Substances





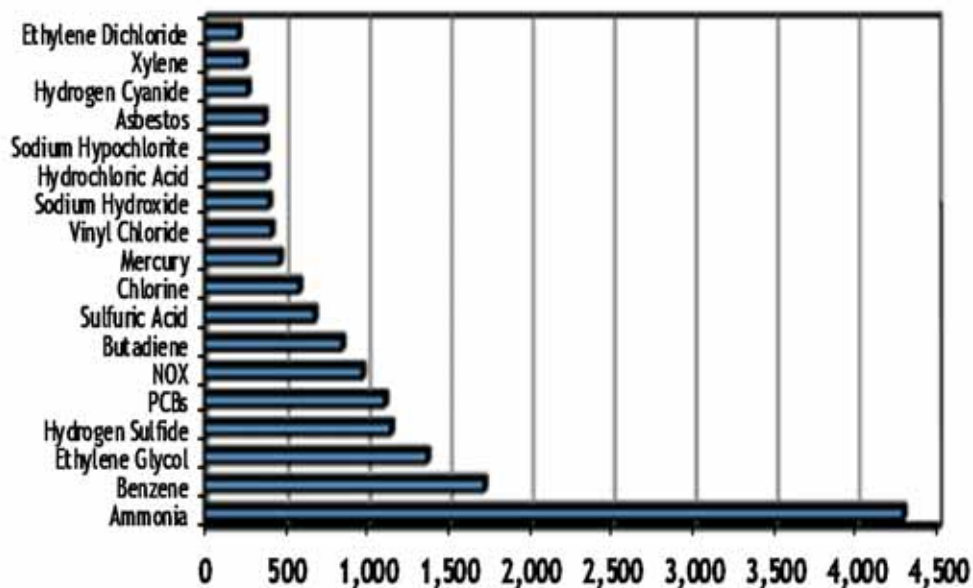
Other Causes may include: aircraft crash, continuous, suspicious activity, derailment, natural phenomenon, overpressuring, transport accident, vessel sinking

Since 2012, approximately 7.6% of all (7.0 % in Region 7) release reports involved a significant event (death, injury, community evacuation, evacuation of a facility, shelter-in-place)

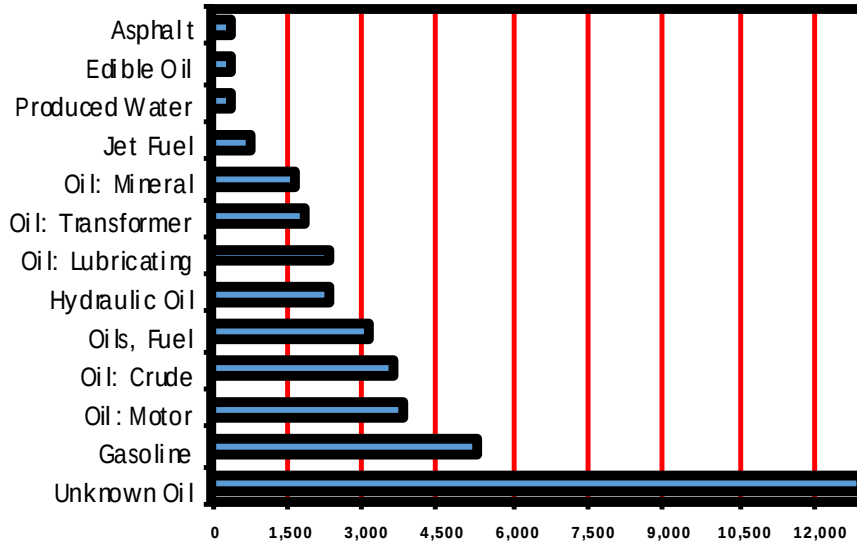
Deaths, injuries, and evacuations may not be directly due to exposure, but as a consequence of the accident resulting in the release

Since 2012, statistically there is approximately eight (8) (1-2 in Region 7) shelter-in-places or evacuations of a community (whole or part) or of a facility due to a hazardous substance, oil, or other material incident somewhere, on a weekly basis

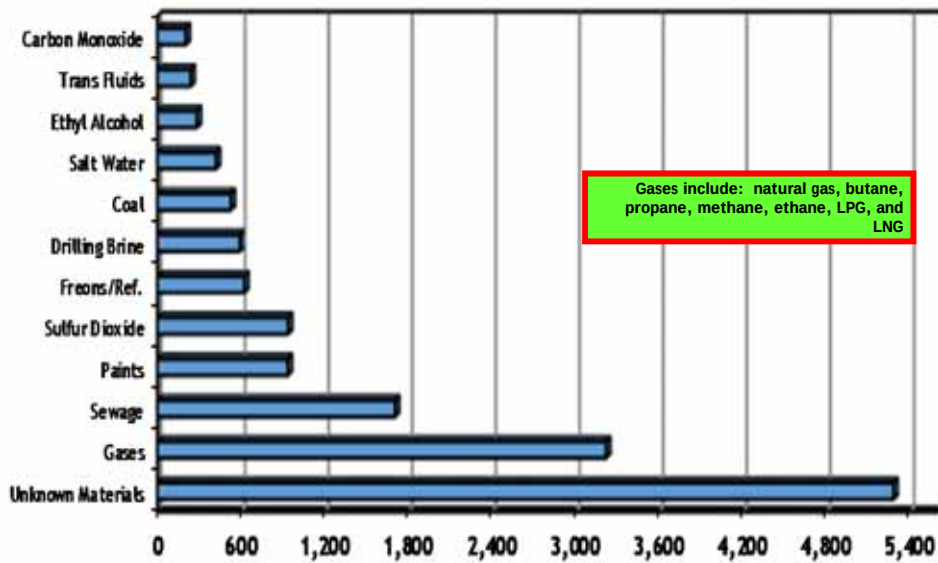
The substances listed below account for 56 % of all hazardous substance release reports nationally since 2012



The oil / oil products listed below account for 88 % of all oil / oil product releases nationally since 2012



The materials listed below account for 90 % of all other material releases nationally since 2012



**SO WHAT DOES THIS
MEAN TO AN LEPC ?**

**As a starting point,
maybe focus on the
top 10 released
chemicals?**

Top 10 List

- Ammonia
- Crude Oil / Benzene
 - Gasoline
 - Chlorine
 - Motor Oil
- Ethylene Glycol
- Propane / Natural Gas
- Hydrogen Sulfide / Sulfur Dioxide
 - Sulfuric Acid
 - Diesel Fuel

Do the first responders in your communities feel comfortable they can respond appropriately to these releases, protecting public health and the environment, while ensuring the protection of the responders ?