U.S. EPA Pacific Southwest Region
Kathryn Lawrence
Chief, Emergency Prevention and Preparedness
May 30, 2013
Risk Management and Clean Air Act 112r

- Overview of Region 9 Operations
- Summary of Region 9 RMP Program
- Spotlight on Recent Enforcement Activity
  - Tyson Foods, Region 7
  - Columbus MFG, Region 9
- Insights on RMP Compliance Monitoring
- Questions
Emergency Management Cycle

EPA Region 9 Emergency Response, Planning and Prevention Programs
Emergency Response

Regional Response Assets
- 15 On Scene Coordinators
- Incident Management Teams: “Three Deep”
- Response Support Corps: 150 people
- RSC Special Teams:
  - Radiological
  - Drinking Water
  - Air
  - Community Outreach Response

- Phone and Response Duty 24/7
- Emergency Operations Center
- 2 Equipment Warehouses
  - Radiological Mobile Command Posts and other response vehicles
  - Drinking Water Monitoring, sampling, and decontamination equipment
Emergency Response

National Response Assets

- EPA has over 250 OSCs who are equipped, trained in Level A, and ready to go 24/7.
- Regions are tied into national notification system and backup each other.
- Flexible contracts: 25,000 contractors.
- Incident Management Teams: “Three deep” in each Region.
- Response Support Corps: 2,000 people.

EPA’s Special Teams

- Environmental Response Team (ERT)
- National Decontamination Team (NDT)
- Radiation Emergency Response Team (RERT)
- National Counterterrorism Evidence Response Team (NCERT)
Emergency Response Notification

Spills and releases of most chemicals over certain quantities must be reported to:

- National Response Center at 800–424–8802
- Regional Call Center at 800–300–2193
Emergency Preparedness

- Communication, Coordination, Collaboration
- Local, Tribal, State and Federal Partnerships
  - Geographically targeted Area Planning
  - Broad Regional Response Planning
  - FEMA ESF10 Collaboration
  - National and Regional Partnership Forums
  - Internal Agency Planning and Preparedness Activities
- US / Mexico Border 2012 Program for Emergency Preparedness / Prevention
Emergency Prevention

• Key Tools:
  • Compliance Outreach
  • Inspections and Enforcement

• Key Laws:
  • Emergency Planning and Community Right to Know Act
  • Clean Air Act Risk Management Program
  • CERCLA 103 Reporting Obligations

• Key Outcomes:
  • Businesses that promptly communicate Hazardous Materials inventories and releases
  • Businesses that manage Hazardous Materials safely
  • Communities that have the information required to plan for emergency response needs and community safety
Summary of Region 9 RMP Universe

Currently 1079 Unique Facilities
Region 9 New Registrations* by Industry as of March 2013

- Food & Beverage, 403, 23%
- Energy, 233, 13%
- Water & Wastewater, 418, 24%
- Chemical Manufacturing, 154, 9%
- Agriculture, 311, 18%
- Other, 223, 13%

Current Facilities: 1,071
*Since 1999
Region 9 De-registrations* by Industry as of March 2013

- Water & Wastewater, 177, 35%
- Food & Beverage, 79, 16%
- Energy, 32, 6%
- Chemical Manufacturing, 42, 9%
- Agriculture, 82, 16%
- Other, 88, 18%

Current Facilities: 1,071
*Since 1999
## Region 9 Top 10 Toxic Chemicals

*Numbers represent multiple processes*

<table>
<thead>
<tr>
<th>Chemical (Toxic)</th>
<th>Total</th>
<th>Facilities¹</th>
<th>Processes²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia (anhydrous)</td>
<td>110,560</td>
<td>587</td>
<td>717</td>
</tr>
<tr>
<td>Chlorine</td>
<td>27,293</td>
<td>275</td>
<td>300</td>
</tr>
<tr>
<td>Ammonia (conc 20% or greater)</td>
<td>18,266</td>
<td>114</td>
<td>119</td>
</tr>
<tr>
<td>Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-]</td>
<td>2,763</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Sulfur dioxide (anhydrous)</td>
<td>2,570</td>
<td>53</td>
<td>55</td>
</tr>
<tr>
<td>Vinyl acetate monomer [Acetic acid ethenyl ester]</td>
<td>2,101</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater) [Hydrofluoric acid]</td>
<td>1,581</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>Titanium tetrachloride [Titanium chloride (TiCl4) (T-4)-]</td>
<td>1,215</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Toluene 2,4-diisocyanate [Benzene, 2,4-diisocyanato-1-methyl-]</td>
<td>1,044</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Formaldehyde (solution)</td>
<td>983</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>

¹This number represents the number of facilities of which the total quantity of each chemical is composed of.
²This number represents the number of unique processes associated with the total quantity of each chemical across the subset of facilities.
Region 9 Top 10 Flammable Chemicals

*Numbers represent multiple processes*

<table>
<thead>
<tr>
<th>Chemical (Flammable)</th>
<th>Total</th>
<th>Facilities&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Processes&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable Mixture</td>
<td>441,688</td>
<td>63</td>
<td>251</td>
</tr>
<tr>
<td>Butane</td>
<td>408,639</td>
<td>33</td>
<td>48</td>
</tr>
<tr>
<td>Propane</td>
<td>340,228</td>
<td>53</td>
<td>63</td>
</tr>
<tr>
<td>Pentane</td>
<td>37,908</td>
<td>19</td>
<td>29</td>
</tr>
<tr>
<td>Isopentane [Butane, 2-methyl-]</td>
<td>12,738</td>
<td>14</td>
<td>19</td>
</tr>
<tr>
<td>Isobutane [Propane, 2-methyl]</td>
<td>7,432</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>1-Pentene</td>
<td>5,096</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Methane</td>
<td>4,702</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Methyl ether [Methane, oxybis-]</td>
<td>623</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Dimethylamine [Methanamine, N-methyl-]</td>
<td>546</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

<sup>1</sup>This number represents the number of facilities of which the total quantity of each chemical is composed of.

<sup>2</sup>This number represents the number of unique processes associated with the total quantity of each chemical across the subset of facilities.
### Region 9 Facilities (Top 10) by NAICS

<table>
<thead>
<tr>
<th>NAICS Code</th>
<th>Description</th>
<th>Facilities $^1$</th>
<th>Processes $^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>49312</td>
<td>Refrigerated Warehousing and Storage</td>
<td>143</td>
<td>145</td>
</tr>
<tr>
<td>22131</td>
<td>Water Supply and Irrigation Systems</td>
<td>125</td>
<td>139</td>
</tr>
<tr>
<td>115114</td>
<td>Postharvest Crop Activities (except Cotton Ginning)</td>
<td>115</td>
<td>151</td>
</tr>
<tr>
<td>22132</td>
<td>Sewage Treatment Facilities</td>
<td>77</td>
<td>95</td>
</tr>
<tr>
<td>221112</td>
<td>Fossil Fuel Electric Power Generation</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>42491</td>
<td>Farm Supplies Merchant Wholesalers</td>
<td>36</td>
<td>46</td>
</tr>
<tr>
<td>221119</td>
<td>Other Electric Power Generation</td>
<td>32</td>
<td>40</td>
</tr>
<tr>
<td>42469</td>
<td>Other Chemical and Allied Products Merchant Wholesalers</td>
<td>27</td>
<td>46</td>
</tr>
<tr>
<td>42471</td>
<td>Petroleum Bulk Stations and Terminals</td>
<td>22</td>
<td>25</td>
</tr>
<tr>
<td>325188</td>
<td>All Other Basic Inorganic Chemical Manufacturing</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>32411</td>
<td>Petroleum Refineries</td>
<td>20</td>
<td>232</td>
</tr>
</tbody>
</table>

$^1$ This number represents the number of facilities per each NAICS code; however facilities may be counted towards multiple NAICS codes if more than one NAICS code exists per facility.

$^2$ This number represents the number of unique processes associated with each NAICS code across the subset of facilities.
Tyson Foods Risk Management Enforcement Case

U.S. EPA Region 7
Tyson Foods, Inc. (Tyson) was founded in 1935 with its headquarters in Springdale, Arkansas. Tyson is the world’s largest processor and marketer of chicken, beef and pork, the second largest food production company in the Fortune 500 and a member of the S&P 500. Tyson has revenues of more than $5.2 billion and employs approximately 117,000 people at 400 facilities nationwide.
Tyson Foods Investigation

- Tyson Investigation in Region 7 started with a fatality accident at South Hutchinson, KS
- Region 7 conducted 5 more inspections and issued 3 information requests
- Region 7 also collected all the recent (5 years) inspections from Federal and Iowa OSHA
- Findings indicated Corporate–wide problems not just facility problems
On October 31, 2006, an anhydrous ammonia release occurred at the South Hutchinson, KS facility resulting in one fatality and one injury. An OSHA investigation revealed that the Standard Operating Procedure (SOP) requiring personal protective equipment was inadequate and that the safety relief valve that failed was installed incorrectly, and was corroded and worn.

On November 8, 2006, an anhydrous ammonia release occurred at the Sedalia, MO facility resulting in three onsite injuries and $125,000 in property damage. EPA conducted an inspection on November 18, 2009, and found that the February 17–20, 2009, Process Hazard Analysis noted numerous deficiencies which had not been corrected, including Management of Change Review related to valve motors and multiple nuisance leaks occurring during the manual operation of the valves (similar to what occurred on the November 8, 2006, ammonia release).

On December 9, 2006, an anhydrous ammonia release occurred at the Hutchinson, KS facility resulting in ten injuries and 43.71 pounds migrating off-site. An OSHA inspection revealed that the vibration on the filter housing caused threads to deteriorate, allowing the filter oil seal to fail.

On December 26, 2006, an anhydrous ammonia release occurred at the Omaha, NE facility resulting in 5 on-site injuries and the evacuation of 475 employees. Both OSHA and EPA conducted inspections which revealed that Tyson’s mechanical integrity program relative to the change out of the failed valve was not implemented and there was no documentation of the inspection, testing or 5-year change-out of the safety relief valve.
Specific Violations

- On October 4, 2007, and November 5, 2009, there were anhydrous ammonia releases at the Perry, IA facility that injured the same employee. Tyson blamed the October 4, 2007, incident on operator error alleging that the employee failed to lock out the ammonia line when initiating a line break and failure to follow SOPs for proper personal protective equipment. However, it was also noted in incident investigation that there was a 3 way safety relief valve failure.
- On October 30, 2007, there was an anhydrous ammonia release at the Sioux City, IA facility that resulted in one injury and the release of 3,867 lbs. of ammonia.
- On November 5, 2009, the same employee was exposed to anhydrous ammonia, burned over 25% of his body and spent 45 days in the hospital. Again, Tyson blamed the operator and cited four operator errors in the incident investigation report: failure to pump out/lock out; failure to utilize a line breaking permit; lack of use of PPE; and failure to follow proper hand valve opening and closing SOP guidelines. However, OSHA found that there was a broken and/or defective reducer in the safety relief valve that should not have been there and that lead to the valve failure.
- On December 13, 2010, an anhydrous ammonia release occurred at the Madison, NE facility resulting in 3 injuries and a release of 309 lbs. of ammonia. Tyson states in its May 23, 2011, response to EPA’s Information Request that given the date of the incident; the incident investigation is still open. The point of discharge was from a pressure relief valve header on the roof.
Tyson Settlement Terms

- $3.95 million penalty
- Pipe-testing
- Third-party audits
- $300,000 as Supplemental Environmental Projects that will purchase anhydrous ammonia related emergency response equipment for fire departments in eight communities where the company’s operations are located
Community SEPs

- Council Bluffs, Iowa, $78,990;
- Perry, Iowa, $72,156;
- Dexter, Mo., $25,795;
- Monett, Mo., $26,855;
- Noel, Mo., $35,829;
- Dakota City, Neb., $16,630;
- Lexington, Neb., $25,858;
- Omaha, Neb., $17,934.
Conduct third-party audits at all 23 CAA 112r(7) covered facilities in EPA Region VII
Auditors must have expertise in ammonia refrigeration systems and must be recognized experts in PSM/RMP compliance.
Audits shall include paper reviews of Tyson’s engineering and design specifications as they relate to the physical systems of the covered processes at the facilities.
Audits shall include on-site Audits of the ammonia refrigeration systems at all the facilities according to a schedule set forth in the audit protocol.
Third Party Audits

- Within 30 days after the completion of each on-site Audit, the Auditor shall provide a report to Tyson and EPA.
- Within 45 days of receiving the Audit report, Tyson shall submit a response to EPA which shall include a plan to correct identified violations within 6 months for non-capital expenditures and within 12 months for capital expenditures.
- Once Tyson has completed implementation of any corrective measure, Tyson shall certify the completion of the work.
Pipe Testing

- Perform non-destructive testing at certain piping used in its refrigeration systems at the 23 facilities.
- The non-destructive testing is designed to identify piping that was partly responsible for some of the anhydrous ammonia releases by testing threaded piping connections less than two (2) inches in diameter because of their potential for failure.
Columbus Manufacturing Inc.

- Salami and deli meats manufacturer
- 3 CA Facilities
  - **South San Francisco**
    - Refrigerated food production and storage facility
    - 2 refrigeration systems each with ~ 4000 lbs anhydrous ammonia (NH₃)
    - Facility adjacent to company with >10,000 employees; 500 kids located in company-owned child care center within 0.1 mile.
  - **Hayward (2)**
Columbus Manufacturing
NH3 Releases

- **February 17, 2009**
  - Early morning, 217 lbs
  - 0 injuries
  - Cause: corroded brass fitting
  - Release reported to National Response Center 5+ hours later
  - Thereafter CMI relocated refrigerant piping to the roof.

- **August 28, 2009**
  - 5:30 am, 200 lbs
  - 30 injuries incl. 17 hospitalizations
  - Off-ramps closed on US 101
  - Cause: strainer basket failure assoc. with high hydrostatic pressure
  - Release reported to the NRC 12 hours later
General Duty Clause CAA 112 r(1)

Owners and operators of facilities utilizing hazardous substances have a general duty to:

• Identify hazards that may result from accidental releases using appropriate hazard assessment techniques,

• Design and maintain a safe facility taking any necessary steps to prevent releases, and

• Minimize the consequences of accidental releases that do occur.
Rooftop valve group - location of August 2009 NH3 release

Site of Failure
Columbus Mfg. Administrative Enforcement

CAA §113(a)(b)(3) Admin Order on Consent issued 2/23/10

- Alleged violations of the GDC
- Required:
  - Specific corrections to conform with industry standards and the GDC
  - Feasibility studies on rooftop containment systems, inherently safer technologies, and reverse 911 community notifications
Violations alleged:
- CAA §112(r)(1) – General Duty Clause
- CAA §112(r)(7) – RMP @ Hayward Facility
- EPCRA §304 & CERCLA §103
- EPCRA §312
Consent Decree Requirements

- Approx. $6M conversion of ammonia refrigeration system to ammonia–glycol hybrid
- Enhanced monitoring, alarming & notification
- Third party compliance audits
- $685,486 penalty
Common Deficiencies in RMP Compliance Monitoring

U.S. EPA Region 9
Oft Observed Deficiencies

- Failure to Report Accidents w/in 6 Months (especially those involving <RQ amounts)
- Failure to change ER POC w/in 6 Months
- Failure to resolve, document, and track PHA, Audit, and Accident Investigation Findings
- Failure to develop SOPs for all operations, especially temporary operations
- Failure to certify SOPs annually
- Failure to include operating limits and consequences of deviation in SOPs
Oft Observed Deficiencies

- Incomplete PSI information
- Failure to ensure everyone gets refresher training
- Failure to Document each individuals training and how it was verified that employees understood the training
- Failure to develop and implement written maintenance procedures
- Failure to test/ inspect at the frequency defined by industry standards/ mfg. instructions
- MOC not completed PRIOR to change
- PSI, SOPs not updated accordingly w/ MOC modifications
Questions (and Answers)

Lawrence.Kathryn@epa.gov