



# CHEMICAL DANGER

**EPA'S Rollbacks of Accidental  
Release Prevention Requirements  
Put Houston Area Residents at Risk**

**AUGUST 2018**



## Chemical Danger

### EPA'S Rollbacks of Accidental Release Prevention Requirements Puts Houston Area Residents at Risk

In May 2018, the Trump Administration released proposed rollbacks of the 2017 Risk Management Plan (RMP) amendments that strip away protections for workers, first responders and community members. The Environmental Protection Agency (EPA) developed the 2017 amendments (known as the “Chemical Disaster Rule”) after President Obama issued an executive order to improve the safety and security of chemical facilities and to protect communities from hazardous chemicals<sup>1</sup>. The executive order was issued following the explosion at a chemical facility in West, Texas, that killed 14 people<sup>2</sup>.

The Chemical Disaster Rule would protect human health and safety through provisions that:

1. Require third-party compliance audits within 12 months of an RMP reportable accident or after an agency determines that conditions could lead to an accidental release.
2. Require facilities to conduct root cause analyses as part of incident investigations following incidents with a catastrophic release or a near miss.
3. Require Safer Technology and Alternatives Analysis to minimize the amount of hazardous substances used, substitute less hazardous substances, moderate through designing less hazardous conditions, or minimizing impact of releases, and simplifying unnecessarily complex design to make operating errors less likely.
4. Require companies to provide, upon request, information to the public on chemical hazards, including substance names, safety data sheets, accident history, emergency response program information, and LEPC contact information.

The proposed rollbacks of the Chemical Disaster Rule has the potential to harm any community near an RMP facility. In the Greater Houston Area<sup>3</sup>, 442 facilities have reported to the Risk Management Program (RMP) database over the past 5 years, and as of April 2018, 314 facilities meet the conditions that require them to report to the Risk Management Program (RMP) database. Because of the high concentration of chemical facilities in the greater Houston area, this region remains at risk for chemical disasters.

---

<sup>1</sup> <https://www.ehstoday.com/safety/president-obama-issues-executive-order-aimed-improving-chemical-facility-safety-and-security>, accessed August 20, 2018.

<sup>2</sup> <https://www.usatoday.com/story/news/nation/2013/04/25/hero-firefighters-west-texas/2112525/>, accessed August 20, 2018.

<sup>3</sup> defined here as the 8 county region including Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties

In fact, a 2016 analysis<sup>4</sup> demonstrated that a chemical accident occurred about once every six weeks in the greater Houston area, and the chemical footprint of Hurricane Harvey<sup>5</sup> showed the need for proactive risk management in protecting the health of first responders and community members.

## Context

For this study, Public Citizen analyzed RMP data for the greater Houston region using the Right to Know Network<sup>6</sup>. Facilities that use large amounts of extremely hazardous substances are required to file Risk Management Plans with the EPA. The RMP Program was established to protect public health and safety following several chemical catastrophes in the 1980s.

The data presented here represent the information submitted by companies to the US EPA. Companies are required to submit information every five years, so information may not be entirely current. Data on 5 year accidents and fatalities represents the 5 years over which the submitted report covers, and does not necessarily reflect an up-to-date tally of accidents, injuries, fatalities and costs.

## Results

In Texas, a total of 2,157 facilities have submitted risk management plans, and of those, 698 have been deregistered. The currently registered facilities use 2,843 processes that could reach off-site the facility. They also use 2.4 billion pounds of toxic chemicals and 38.5 billion pounds of flammable chemicals in their processes.

A total of 224 5-year accidents were reported, with 8 deaths and 258 injuries associated with those accidents. These accidents led to \$387 million in property damage. Looking at these numbers, it is obvious that incidents like the explosion at the fertilizer plant in West, Texas, that killed 15 people and injured 160 were not included in this tally.

In the Greater Houston Area, 442 facilities have reported to the Risk Management Program (RMP) database over the past 5 years, and 314 facilities meet the conditions that require them to report to the Risk Management Program (RMP) database as of April 2018. Between the 314 facilities that are currently reporting, there are 892 processes that could have offsite consequences. The RMP facilities within the 8 county region use 51 different toxic chemicals in processes, which total to over 1.6 billion pounds. Those facilities also use 29.9 billion pounds of flammable chemicals.

---

<sup>4</sup> <https://www.houstonchronicle.com/chemical-breakdown/1/>, accessed August 23, 2018.

<sup>5</sup> <https://www.houstonchronicle.com/news/science-environment/article/Harvey-pollution-13152511.php>, accessed August 23, 2018.

<sup>6</sup> <http://www.rtk.net/>, accessed August 20, 2018.

The results show that 89 5-year accidents were recorded in the Greater Houston area, with 5 deaths and 112 accidents. The amount of property damage from 5 year accidents exceeded \$175 million. Because RMP facilities are supposed to provide reports every 5 years, this number does not reflect the amount of property damage that took place from 2013-2018; this number reflects the amount each facility has reported over the 5 years previous to their last RMP submission.

### *Toxic Chemicals*

The Greater Houston area contains over 1.6 billion pounds of toxic chemicals, which represents about two thirds of the toxic chemicals in the entire state. RMP facilities in the Greater Houston Area contain over 50 different chemicals, including chemicals like chlorine, chloroform, formaldehyde, and hydrofluoric acid. Accidents involving chlorine are among the most injurious in the country, according to the CDC<sup>7</sup>. Listed below are the top chemicals found in each of the eight counties in the Greater Houston region.

#### **Ammonia**

Top chemical in: Waller, Brazoria, and Fort Bend Counties.

Ammonia is a colorless gas with a familiar pungent smell; it is often found mixed with water and is known in its pure form as anhydrous ammonia. Ammonia is an irritant and a corrosive and should not be exposed to the skin, eyes, respiratory tract, or mucous membranes. Exposure by inhalation can cause bronchospasm, pulmonary edema, and respiratory arrest. Inhalation of concentrations of 5,000 parts per million can cause death.

Accidents involving ammonia caused over 1500 injuries from 1999-2008, according to the CDC, and releases of ammonia resulted in more people being evacuated than other chemicals<sup>8</sup>.

#### **Vinyl Acetate Monomer**

Top chemical in: Galveston, Harris Counties

Vinyl acetate is a clear, colorless, flammable liquid with a sharply sweet odor. It is very hazardous upon contact with skin or inhalation. It is hazardous upon contact with eyes or ingestion. Acute effects of exposure to skin can include inflammation leading to blistering; exposure to the eyes can lead to inflammation. The International Agency for Research on Cancer classifies vinyl acetate as a possible human carcinogen. EPA included vinyl acetate in its initial list of 189 hazardous air pollutants (HAPs).

#### **Benzene,1,3diisocyanatomethyl (Toluene diisocyanate)**

Top chemical in: Chamber County.

---

<sup>7</sup> <https://www.cdc.gov/mmwr/preview/mmwrhtml/ss6402a6.htm>, accessed August 23, 2018.

<sup>8</sup> <https://www.cdc.gov/mmwr/preview/mmwrhtml/ss6402a6.htm>, accessed August 23, 2018.

Benzene, 1,3-diisocyanatomethyl is a very toxic chemical, particularly by inhalation. It can cause irritation to the respiratory system, allergy or asthma symptoms, breathing difficulties and, at sufficient concentrations, death. It can cause skin irritation and serious eye irritation upon contact. It is especially hazardous to aquatic organisms and, due to its potential for long term damage to aquatic environments, should never be released into the environment. There is some evidence that it is carcinogenic.

### **Ethylene Oxide**

Top chemical in: Montgomery and Liberty Counties.

Ethylene oxide is a colorless liquid or gas that, while it smells similar to ether, is hazardous below the odor threshold. It is flammable as a liquid and can form explosive mixtures as a vapor. Effects of inhalation include respiratory irritation and lung injury, headache, nausea, vomiting, diarrhea, shortness of breath, and blue or purple coloring of the skin. Ingestion can cause gastric irritation and liver injury. Ethylene oxide is associated with cancer, reproductive effects, mutagenic changes, neurotoxicity, and sensitization. OSHA standards dictate that an eight-hour exposure in the workplace not exceed 1 part per million. Ethylene oxide was included in EPA's initial list of 189 hazardous air pollutants (HAPs).

### **Propylene oxide**

Top chemical in: Liberty County.

Propylene oxide is a colorless, flammable liquid that is very hazardous if it comes into contact with the eyes, is ingested, or is inhaled. It is hazardous upon contact with the skin. It is toxic to the lungs and mucous membranes and can damage organs upon prolonged exposure. Propylene oxide is classified by the National Toxicology Program as reasonably anticipated to be a human carcinogen and is listed by the International Agency for Research on Cancer as a Group 2B carcinogen. Propylene oxide was included in EPA's initial list of 189 hazardous air pollutants (HAPs).

Chemical	County	EPA HAP	CAS Number	MSDS
Ammonia	Waller, Brazoria, Fort Bend	no	7664-41-7	<a href="https://www.tannerind.com/anhydrous-msds.html">https://www.tannerind.com/anhydrous-msds.html</a>
Vinyl acetate monomer	Galveston, Harris	yes	108-05-4	<a href="https://www.sciencelab.com/msds.php?msdsId=9927644">https://www.sciencelab.com/msds.php?msdsId=9927644</a>
Toluene diisocyanate (unspecified isomer) [Benzene,1,3diisocyanatomethyl]	Chambers	no	26471-62-5	<a href="http://www.emdmillipore.com/US/en/product/Toluylene-diisocyanate,MDA_CHEM-808264">http://www.emdmillipore.com/US/en/product/Toluylene-diisocyanate,MDA_CHEM-808264</a>
Ethylene oxide	Montgomery, Liberty	yes	75218	<a href="https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1047AppA">https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1047AppA</a>
Propylene oxide	Liberty	yes	75569	<a href="http://www.sciencelab.com/msds.php?msdsId=9927240">http://www.sciencelab.com/msds.php?msdsId=9927240</a>