EPA Region 1 General Duty Clause Pilot

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EPA Region 1

Featured in August 2020 Rink Rat

EPA Initiative Continues to Improve Safety of Ammonia Refrigeration Facilities in New England

7/23/2020

In 2018, the U.S. Environmental Protection Agency (EPA) launched a pilot initiative to improve compliance with the General Duty Clause under the Clean Air Act Section 112(r)(1) at New England facilities with small ammonia refrigeration systems. Section 112(r)(1) of the Clean Air Act aims to prevent accidental releases of substances that can cause serious harm to the public and the environment. Facilities that fail to comply with the requirements put facility personnel, employees of adjacent businesses, emergency responders, and the local population and environment at risk of harm from such releases.

Through its GDC Initiative, EPA Region 1 is working to improve compliance with the first GDC requirement -- that facilities must identify hazards that may result from accidental releases using appropriate hazard assessment techniques. While the GDC Initiative is focused on facilities with more than 1,000 lbs of ammonia, all facilities with regulated and other extremely hazardous substances, including ammonia, need to comply with the General Duty Clause, including a Process Hazard Review. The effort has included ammonia safety trainings for ice rinks and other ammonia refrigeration facilities across New England. EPA will offer trainings related to the Process Hazard Review in the coming year.

So far, EPA has reached hundreds of facilities, including ice rinks, through trainings and informative letters and emails. EPA has also issued information request letters to 50 companies and entered into Expedited Settlement Agreements (ESAs) with seven facilities that had not yet completed process hazard reviews. Also, EPA learned from course evaluation forms that more facilities planned to conduct a process hazard review.

Read more about EPA Region 1's GDC Initiative at: https://www.epa.gov/newsreleases/epa-initiative-continues-improve-safety-ammonia-refrigeration-facilities-new-england

Read more from EPA Region 1 about ammonia safety for ice rinks: https://www.epa.gov/indoor-air-quality-iaq/ammonia-safety-new-england-ice-rinks

Read more from EPA Region 1 about Emergency Planning and Community Right-to-Know Act (EPCRA) Tier 2 Reporting for ice rinks: https://www.epa.gov/indoor-air-quality-iaq/ammonia-safety-new-england-ice-rinks

General Duty Clause

Clean Air Act 112(r) requires facilities to:

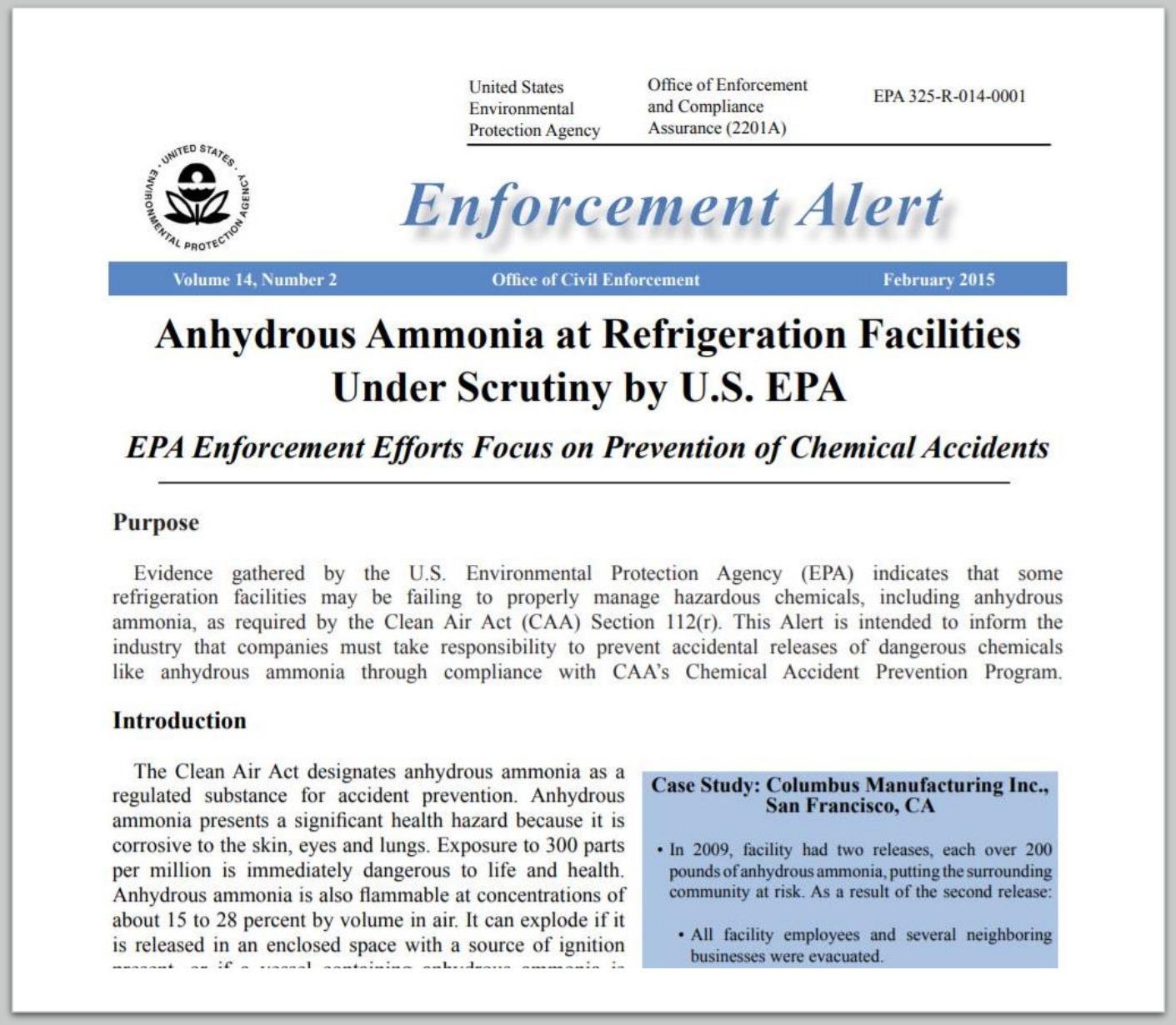
1. “Identify hazards which may result from such releases using appropriate hazard assessment techniques”
2. Design and maintain safe facility to prevent releases
3. Minimize consequences of accidental releases which do occur

EPA's General Duty Clause website

https://www.epa.gov/rmp/general-duty-clause-under-clean-air-act-section-112r1

Traditional Enforcement:

- Serious deficiencies found on several Region 1 GDC inspections
- These detailed enforcement cases overwhelm our inspection resources
- Need more efficient way to improve safety
- Owners are likely to improve the safety of their facilities once they recognize the hazards of their system



United States Environmental Protection Agency | Office of Enforcement and Compliance Assurance (2201A) | EPA 325-R-014-0001

Enforcement Alert

Volume 14, Number 2 | Office of Civil Enforcement | February 2015

Anhydrous Ammonia at Refrigeration Facilities Under Scrutiny by U.S. EPA

EPA Enforcement Efforts Focus on Prevention of Chemical Accidents

Purpose

Evidence gathered by the U.S. Environmental Protection Agency (EPA) indicates that some refrigeration facilities may be failing to properly manage hazardous chemicals, including anhydrous ammonia, as required by the Clean Air Act (CAA) Section 112(r). This Alert is intended to inform the industry that companies must take responsibility to prevent accidental releases of dangerous chemicals like anhydrous ammonia through compliance with CAA's Chemical Accident Prevention Program.

Introduction

The Clean Air Act designates anhydrous ammonia as a regulated substance for accident prevention. Anhydrous ammonia presents a significant health hazard because it is corrosive to the skin, eyes and lungs. Exposure to 300 parts per million is immediately dangerous to life and health. Anhydrous ammonia is also flammable at concentrations of about 15 to 28 percent by volume in air. It can explode if it is released in an enclosed space with a source of ignition

Case Study: Columbus Manufacturing Inc., San Francisco, CA

- In 2009, facility had two releases, each over 200 pounds of anhydrous ammonia, putting the surrounding community at risk. As a result of the second release:
  - All facility employees and several neighboring businesses were evacuated.

General Duty Clause Pilot

https://www.epa.gov/sites/production/files/2019-07/documents/ammoniafocus.pdf

Improving Safety at Facilities in New England with Smaller Ammonia Refrigeration Systems through Joint Enforcement and Compliance Assistance

- Focus: Ammonia refrigeration facilities between 1,000 – 10,000 pounds of ammonia
- Document whether facilities have conducted a Process Hazard Review
- If not, offer an expedited settlement (ESA)

Note: All facilities with ammonia need to have their hazards assessed

What it's all about

Purpose: Improve compliance at smaller ammonia refrigeration facilities without need for inspections.

Steps:

1. **Identify facilities**
2. **Send public notice**
3. **Issue info. request** to determine if company has identified hazards (GDC Duty #1).
4. If not, **offer $5,000 settlement** and require company to (a) conduct hazard review with expert help, (b) meet with responders and (c) file any missing EPCRA Tier II forms.

3 GDC Statutory Duties

1) "Identify hazards which may result from such releases using appropriate hazard assessment techniques"
2) Design and maintain safe facility to prevent releases
3) Minimize consequences of accidental releases which do occur

Information Request

Four “fill in the blank” questions:

1. Does your facility have a refrigeration system that uses ammonia?
2. What is the inventory?
3. Has a process hazard review been conducted? When?
4. Any significant releases in the last 5 years?

What is a Process Hazard Review?

A Process Hazard Review that complies with the General Duty Clause will:

- Identify and evaluate the potential hazards associated with your refrigeration system
- Assess the design and operational safeguards in place to prevent ammonia releases
- Assess what might happen if the safeguards fail, the effect of facility siting on the hazards, and the risk and consequence of human error

*A process hazard review **is not** the same as an equipment maintenance or inspection checklist*

Common acceptable Hazard Assessment methodologies

IIAR has a template for smaller ammonia systems that uses a combined What if/Checklist methodology

Other industry recognized techniques

- What-if
- Checklist
- What-if/Checklist
- Hazard and operability study (HAZOP)
- Failure mode and effects analysis (FMEA)
- Fault tree analysis (FTA)

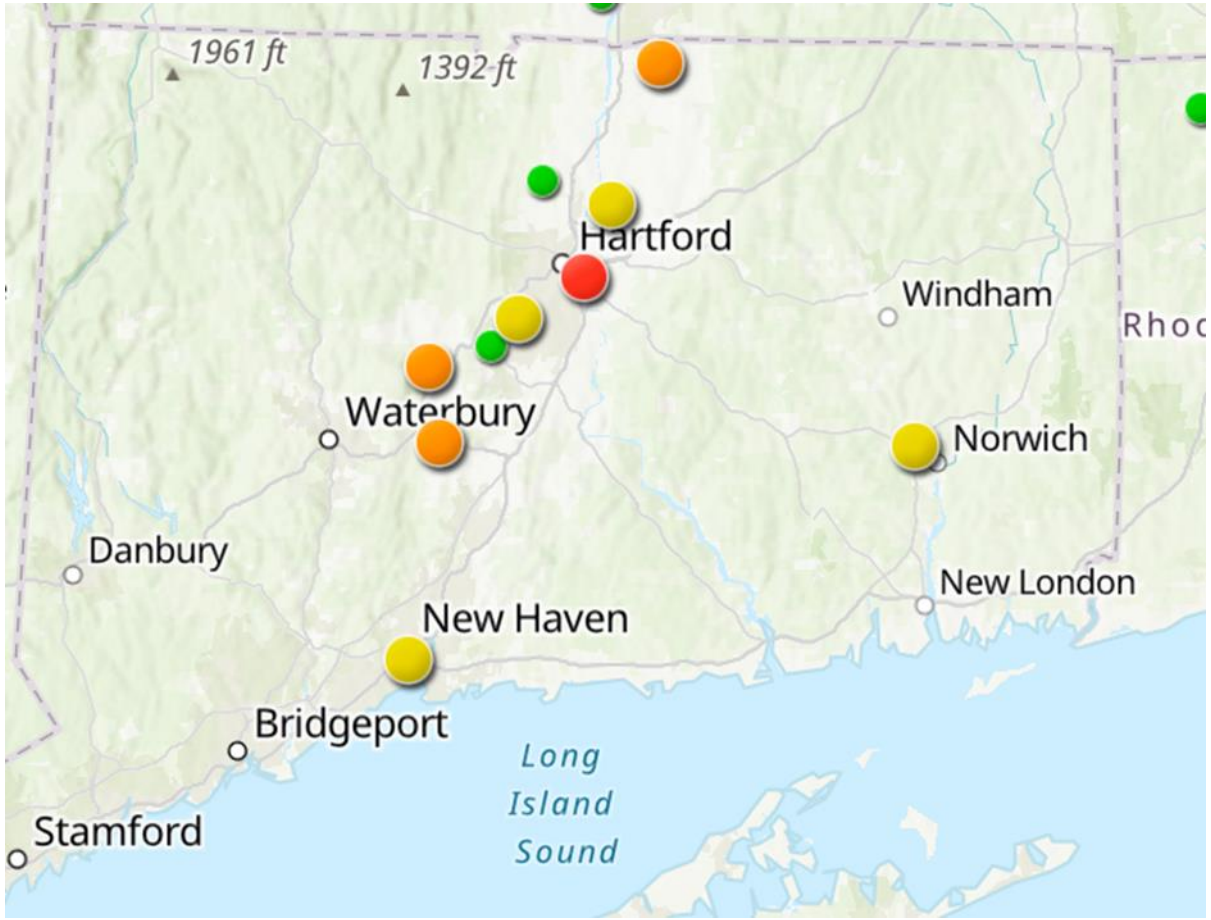
General Duty Clause Results to Date

- Information Request (IR) letters sent to 67 ammonia refrigeration facilities
  - All have completed a Process Hazard Review
  - 72% of these facilities ultimately completed their process hazard reviews as a result of EPA's GDC pilot

- About 40 additional facilities will receive IRs in early 2021

General Duty Clause Pilot Map: CT

- ESA
- PHA after Targeted Compliance Assistance
- PHA after General Compliance Assistance
- PHA before Pilot began
- Removed
- Spin-off



General Duty Clause Pilot Resources

Fact Sheet describing the GDC Compliance Assurance and Enforcement Initiative, February 2019

https://www.epa.gov/enforcement/improving-safety-facilities-new-england-smaller-ammonia-refrigeration-systems

EPA information on the General Duty Clause requirements of Section 112(r) of the Clean Air Act

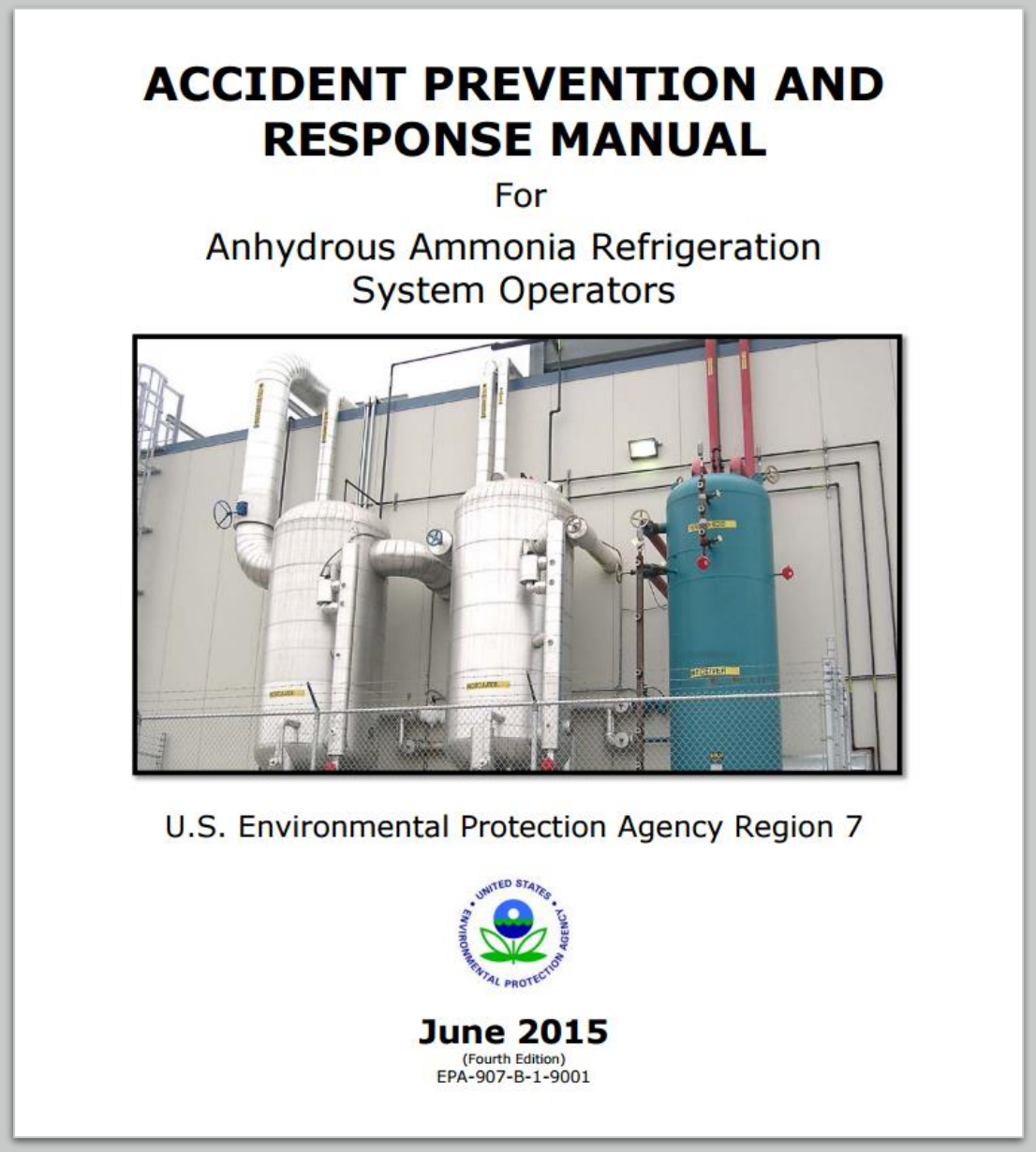
https://www.epa.gov/rmp/general-duty-clause-under-clean-air-act-section-112r1

EPA Initiative Continues to Improve Safety of Ammonia Refrigeration Facilities in New England, 7/23/2020

https://www.epa.gov/newsreleases/epa-initiative-continues-improve-safety-ammonia-refrigeration-facilities-new-england

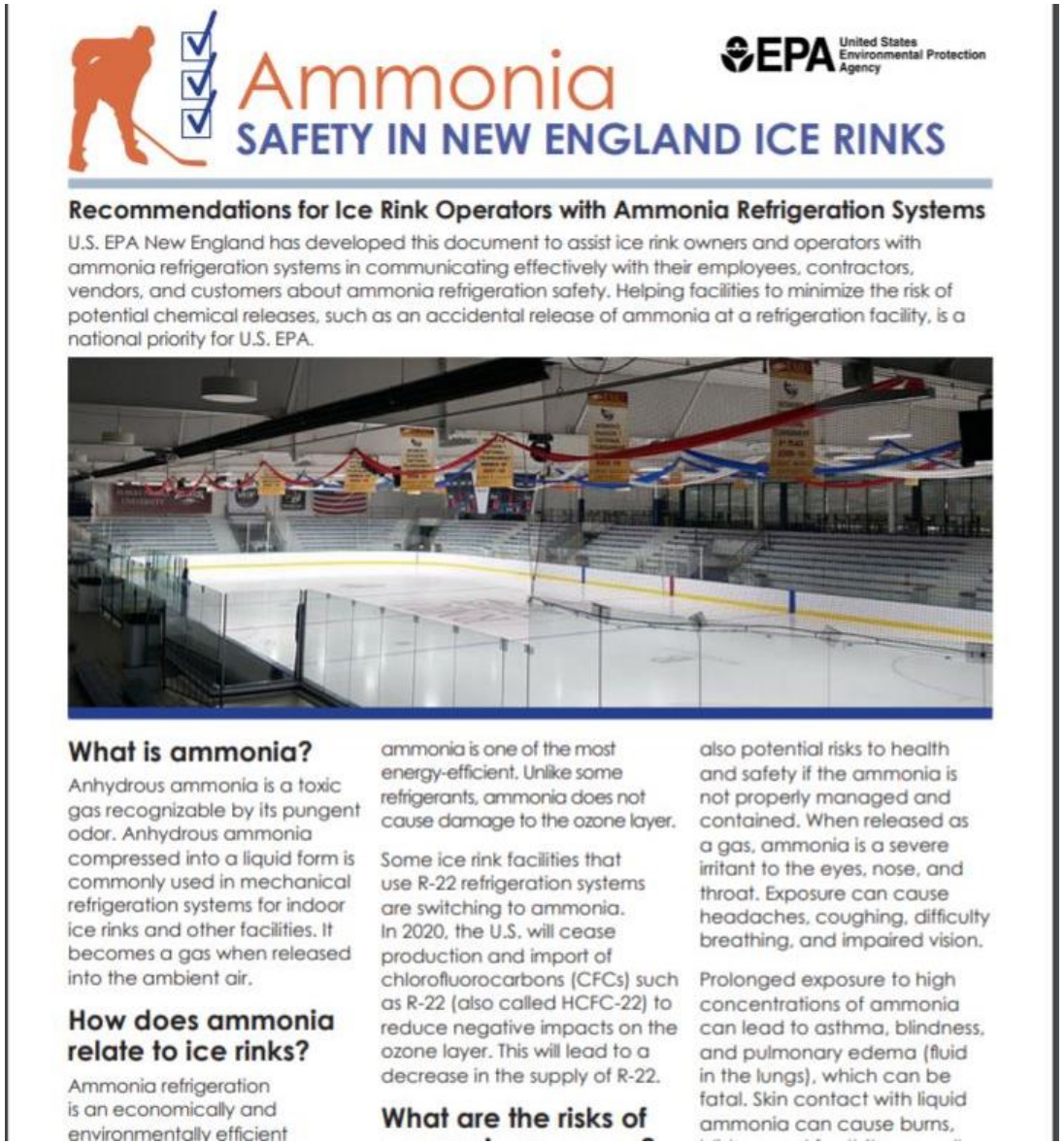
Ammonia Refrigeration Resources

- Compliance Assistance Tools And Resources For The Ammonia Refrigeration Sector
- EPA's Accident Prevention & Response Manual For Anhydrous Ammonia Refrigeration System Operators, June 2015
- Safety Standards for Ammonia Refrigeration, May 2018



Ammonia Refrigeration Resources

- EPA Region 1 Ammonia Refrigeration webinar, November 2018
- Ammonia Safety in New England Ice Rinks, December 2018
- Ice Rinks Emergency Planning and Community Right-To-Know Act fact sheet, November 2019



Ammonia
SAFETY IN NEW ENGLAND ICE RINKS

EPA United States Environmental Protection Agency

Recommendations for Ice Rink Operators with Ammonia Refrigeration Systems

U.S. EPA New England has developed this document to assist ice rink owners and operators with ammonia refrigeration systems in communicating effectively with their employees, contractors, vendors, and customers about ammonia refrigeration safety. Helping facilities to minimize the risk of potential chemical releases, such as an accidental release of ammonia at a refrigeration facility, is a national priority for U.S. EPA.

What is ammonia?

Anhydrous ammonia is a toxic gas recognizable by its pungent odor. Anhydrous ammonia compressed into a liquid form is commonly used in mechanical refrigeration systems for indoor ice rinks and other facilities. It becomes a gas when released into the ambient air.

How does ammonia relate to ice rinks?

Ammonia refrigeration is an economically and environmentally efficient

ammonia is one of the most energy-efficient. Unlike some refrigerants, ammonia does not cause damage to the ozone layer.

Some ice rink facilities that use R-22 refrigeration systems are switching to ammonia. In 2020, the U.S. will cease production and import of chlorofluorocarbons (CFCs) such as R-22 (also called HCFC-22) to reduce negative impacts on the ozone layer. This will lead to a decrease in the supply of R-22.

What are the risks of

also potential risks to health and safety if the ammonia is not properly managed and contained. When released as a gas, ammonia is a severe irritant to the eyes, nose, and throat. Exposure can cause headaches, coughing, difficulty breathing, and impaired vision.

Prolonged exposure to high concentrations of ammonia can lead to asthma, blindness, and pulmonary edema (fluid in the lungs), which can be fatal. Skin contact with liquid ammonia can cause burns,

EPCRA Resources

Tier2 Submit 2020 Software:

https://www.epa.gov/epcra/tier2-submit-software

State Tier 2 reporting procedures and requirements:

https://www.epa.gov/epcra/state-tier-ii-reporting-requirements-and-procedures.

EPCRA Quick Reference Fact Sheet, Fall 2020

https://www.epa.gov/sites/production/files/2020-10/documents/epcra_quick_reference_fact_sheet.pdf

Guide to EPCRA, Fall 2020

https://www.epa.gov/sites/production/files/2020-10/documents/guide_to_epcra.pdf

Contact Us with any Further Questions

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