EPCRA/RMP/GDC

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The Aftermath of Bhopal

When the sun rose on December 3, 1984, the city of Bhopal, India, lay in a dense cloud of toxic gas. An overnight leak at the local Union Carbide plant had loosed methyl isocyanate onto the sleeping town.

So far, 2,000 people have lost their lives, with more possibly to follow from the long-range effects of the gas. More than 200,000 have suffered injuries from exposure to the gas.

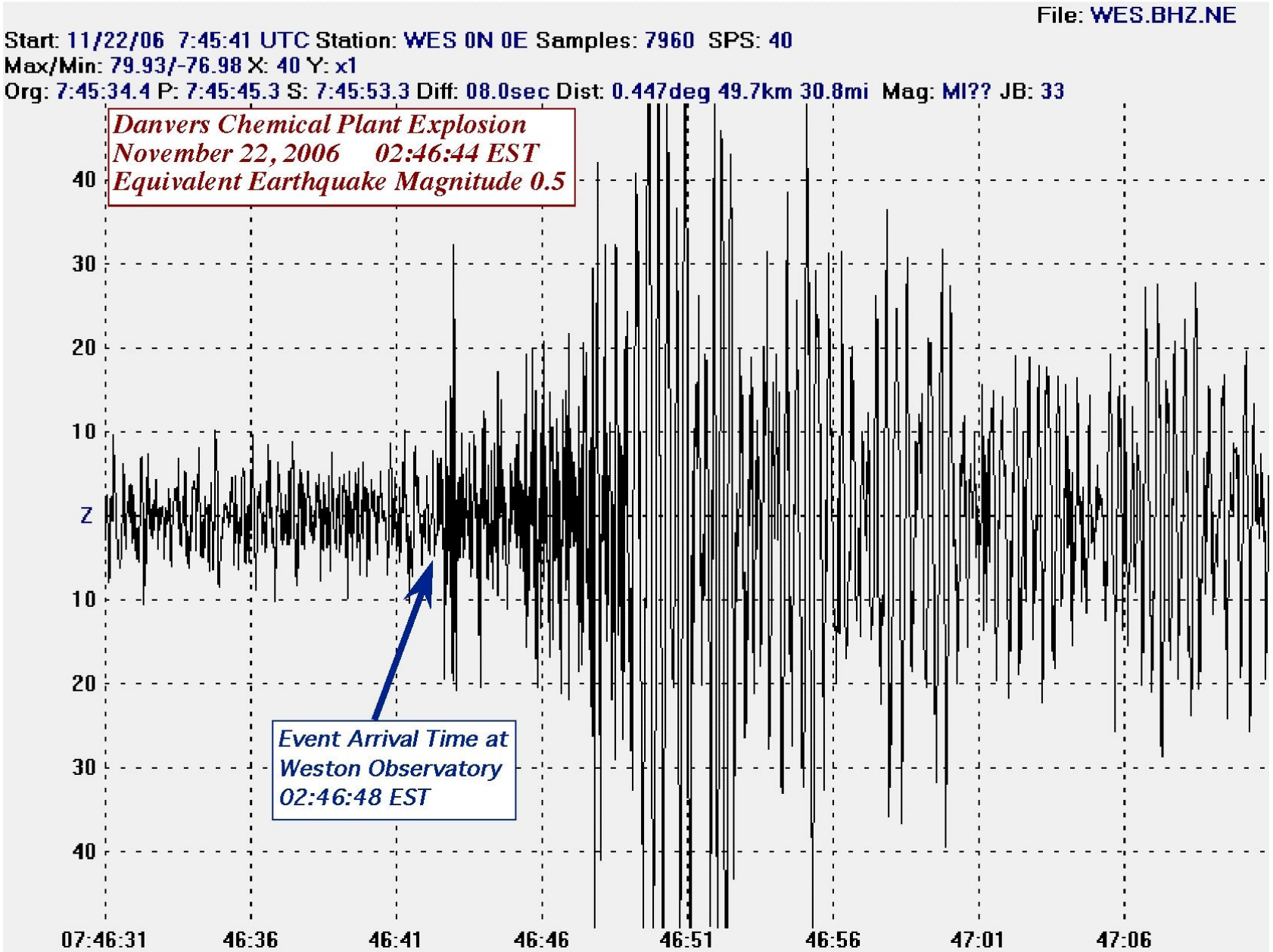
A woman and her child lie dead on a street on December 3, 1984, after the toxic gas leak. The accident killed thousands and contaminated water and soil when toxic methyl isocyanate gas leaked from Union Carbide's pesticide plant

Public demand for chemical release information skyrocketed in the mid-1980s after a deadly cloud of highly toxic pesticide killed thousands of people in Bhopal, India.

Shortly thereafter, a serious chemical release at a plant in West Virginia hospitalized 100 individuals.

These events led to the writing and passage of EPCRA by Congress that was signed by President Reagan in October 1986 and implemented in 1987.

Explosion rocks Danvers several hurt, none seriously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Start: 11/22/06 7:45:41 UTC Station: WES 0N 0E Samples: 7960 SPS: 40
Max/Min: 79.93/-76.98 X: 40 Y: x1
Org: 7:45:34.4 P: 7:45:45.3 S: 7:45:53.3 Diff: 08.0sec Dist: 0.447deg 49.7km 30.8mi Mag: Ml?? JB: 33
Danvers Chemical Plant Explosion
November 22, 2006 02:46:44 EST
Equivalent Earthquake Magnitude 0.5
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10
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30
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Event Arrival Time at
Weston Observatory
02:46:48 EST
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46:36
46:41
46:46
46:51
46:56
47:01
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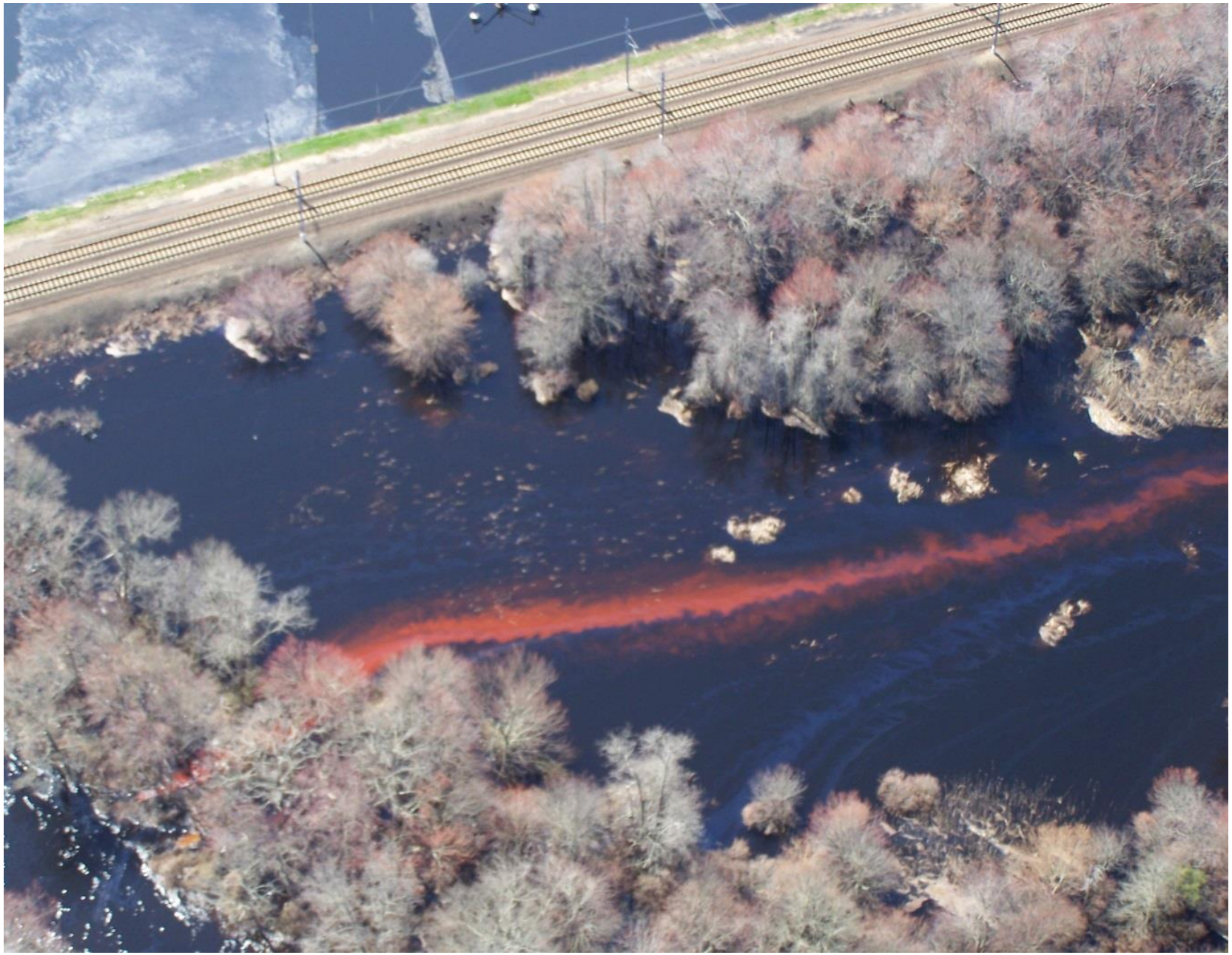
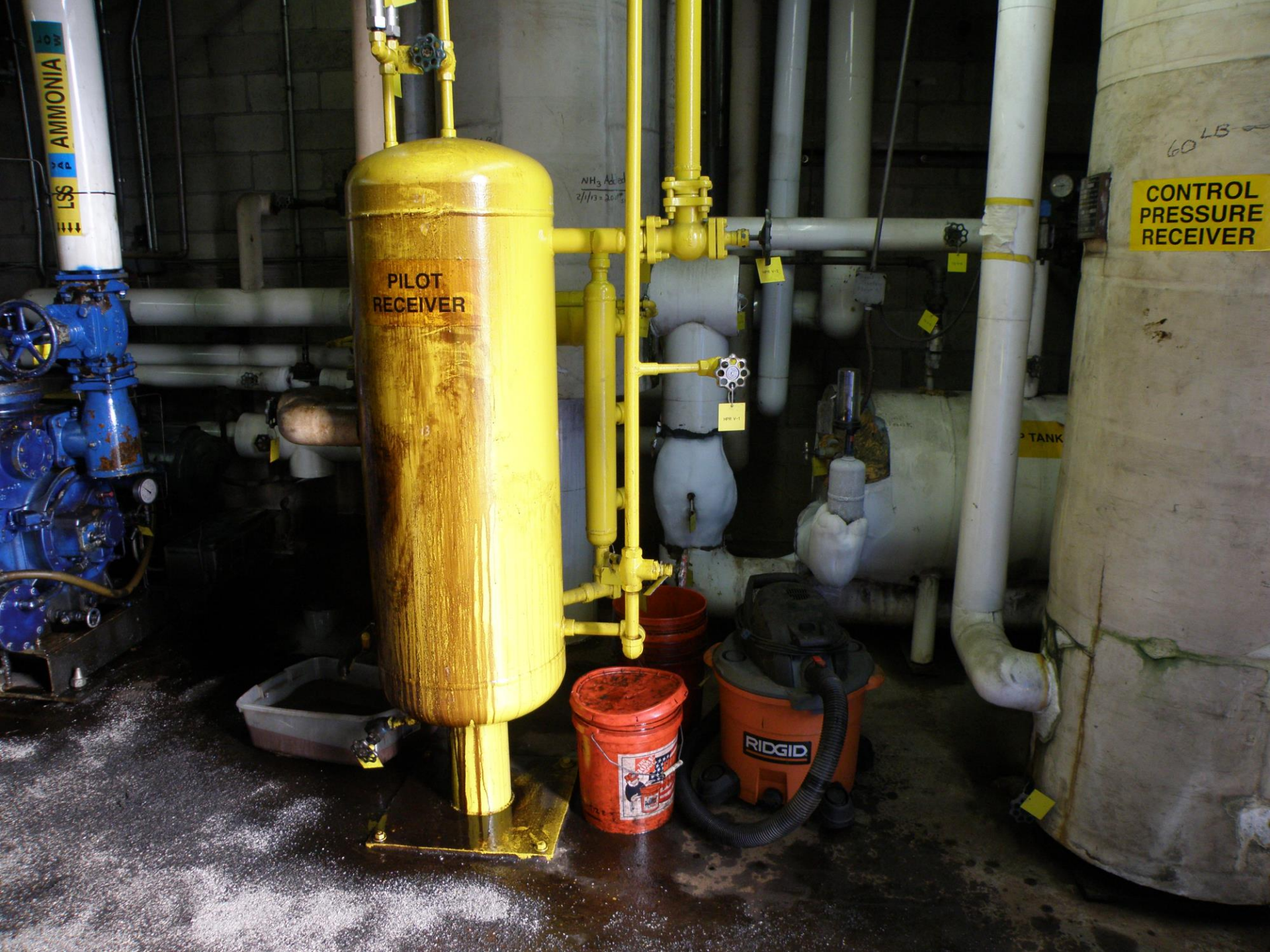


STEED


CAUTION
208 VOLTS
N.U.POWER
CAUTION


AMMONIA
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RIDGID


SANITIZE

Actions to Improve Chemical Facility Safety and Security – A Shared Commitment Report of the Federal **Working Group on Executive** Order 13650


EXECUTIVE ORDER 13650
ACTIONS TO IMPROVE CHEMICAL FACILITY SAFETY AND SECURITY – A SHARED COMMITMENT
REPORT FOR THE PRESIDENT
May 2014

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The Office of Land and Emergency Management (OLEM)

http://www.epa.gov/aboutepa/about-office-land-and-emergency-management-olem

Office of Emergency Management (OEM)

OEM works with other federal partners to prevent accidents as well as to maintain superior response capabilities. One of their roles is to provide information about response efforts, regulations, tools, and research that will help the regulated community, government entities, and concerned citizens prevent, prepare for, and respond to emergencies. OEM administers the Oil Pollution Act and several other environmental statutes.

Programs and Projects Managed by the Office of Emergency Management:

- Chemical, Biological, Radiological, and Nuclear Consequence Management Advisory Division (CMAD)
- **Emergency Planning and Community Right-to-Know Act (EPCRA) Requirements**
- Emergency Response
- **Executive Order on Improving Chemical Facility Safety and Security**
- Facility Response Plan (FRP) Rule
- Local Governments Reimbursement (LGR) Program
- National Contingency Plan (NCP) Subpart J Product Schedule
- Reporting Oil Discharges and Hazardous Substance Releases
- **Risk Management Plan (RMP)**
- Spill Prevention, Control, and Countermeasure (SPCC) Rule

EPCRA Overview

SECTION	COVERAGE/ TOPIC	REQUIREMENT	RELEVANT CHEMICAL LIST	THRESHOLDS	SUBMIT TO:
301-303	Emergency Planning	LEPC Emergency Plan, EHS Notification	356 Extremely Hazardous Substance	Specified Threshold Planning Quantities (TPQ: 1 - 10,000 #)	SERC/TERC LEPC/TEPC
304	Emergency Notification	Accidental Release Reporting	EHS and CERCLA 102(a) Substance	Specified Reportable Quantities	SERC/TERC LEPC/TEPC
311	Hazardous Chemical Inventory	SDS (MSDS) or List of Chemicals	OSHA Hazardous Chemicals (No Specific List)	10,000 #, or, if EHS, 500 #, or TPQ - whichever is lower	SERC/TERC LEPC/TEPC Local Fire Dept
312	Hazardous Chemical Inventory	Inventories, Hazards, and Locations (Tier I and II)	OSHA Hazardous Chemicals (No Specific List)	10,000 #, or, if EHS, 500 #, or TPQ - whichever is lower	SERC/TERC LEPC/TEPC Local Fire Dept
313	Toxic Chemical Release Reporting	Total Annual Release, Waste Management, & Source Reduction Data - PPA (Form R)	Over 600 Toxic Chemicals and Chemical Categories	25,000 # manufactured or processed; 10,000 # otherwise used	EPA State

Executive Order 13834 of May 17, 2018

Lithium Ion Batteries

Lithium Ion Batteries are subject to EPCRA 311/312 Reporting Requirements

Facility owners/operators must therefore complete MSDS Reporting and Tier II Reporting if the applicable reporting thresholds are met or exceeded.

OSHA has determined that lithium ion batteries are subject to the OSHA HCS regulations. Thus, facility owners/operators are required to prepare or have an MSDS for lithium ion batteries.

Some lithium ion batteries may be exempt under EPCRA Section 311(e)(3), often referred to as the Consumer Product Exemption.

https://emergencymanagement.zendesk.com/hc/en-us/articles/360029686151-Lithium-Ion-Batteries-and-EPCRA-311-312-Reporting-Requirements

America's Water Infra-structure Act (AWIA)

2018 legislation amends EPCRA Sections 304/312

Goal is to prevent or minimize contamination of community drinking water sources and protect public health

Requires state and tribal emergency response commissions (SERC/TERC) to:

- Notify the applicable State agency (i.e., the drinking water primacy agency) of any reportable releases, and
- Provide community water systems with hazardous chemical inventory data (i.e. Tier II information)

Allows community water systems to proactively prepare for and mitigate potential releases of hazardous chemicals

https://www.epa.gov/ground-water-and-drinking-water/americas-water-infrastructure-act-2018-awia

EPCRA Sections 301-303

Emergency Planning

Emergency Planning Requirements (EPCRA Sections 301-303)

Section 301

Establish State Emergency Response Commissions (SERCs) and Tribal Emergency Response Commissions (TERCs), designate local emergency planning districts, and appoint Local Emergency Planning Committees (LEPCs for each district) and Tribal Emergency Planning Committees (TEPCs)

Section 302

Designate extremely hazardous substances (EHSs) and threshold planning quantities and notification requirements for covered facilities.

Section 303

Develop local emergency response plans

LEPC/TEPC

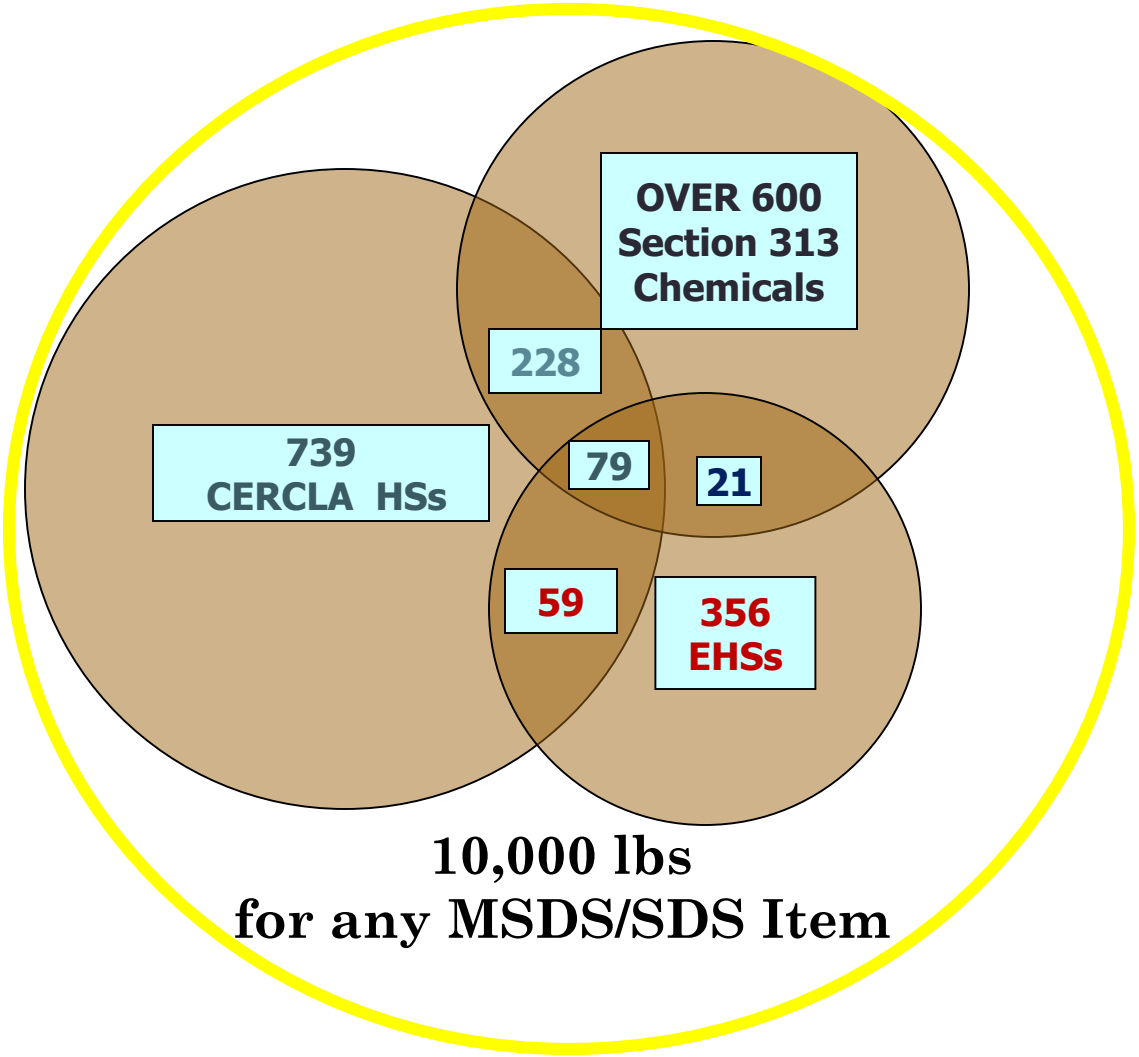
Local Emergency Planning Committee/Tribal Emergency Planning Committee

LEPC/TEPC

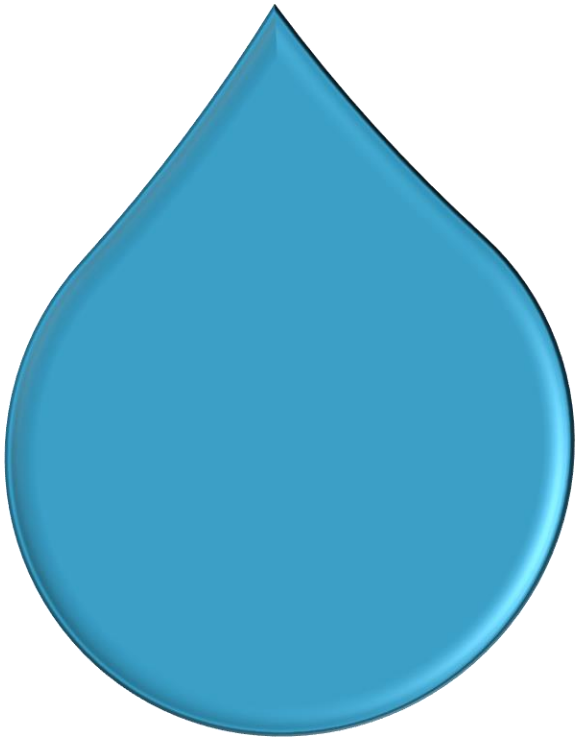
Representatives from each of the following groups or organizations:

- Elected State and local officials;
- Law enforcement, civil defense, firefighting, first aid, health, local environmental, hospital, and transportation personnel;
- Broadcast and print media;
- Community groups; and
- **Owners and operators of facilities subject to the requirements of this subchapter.**

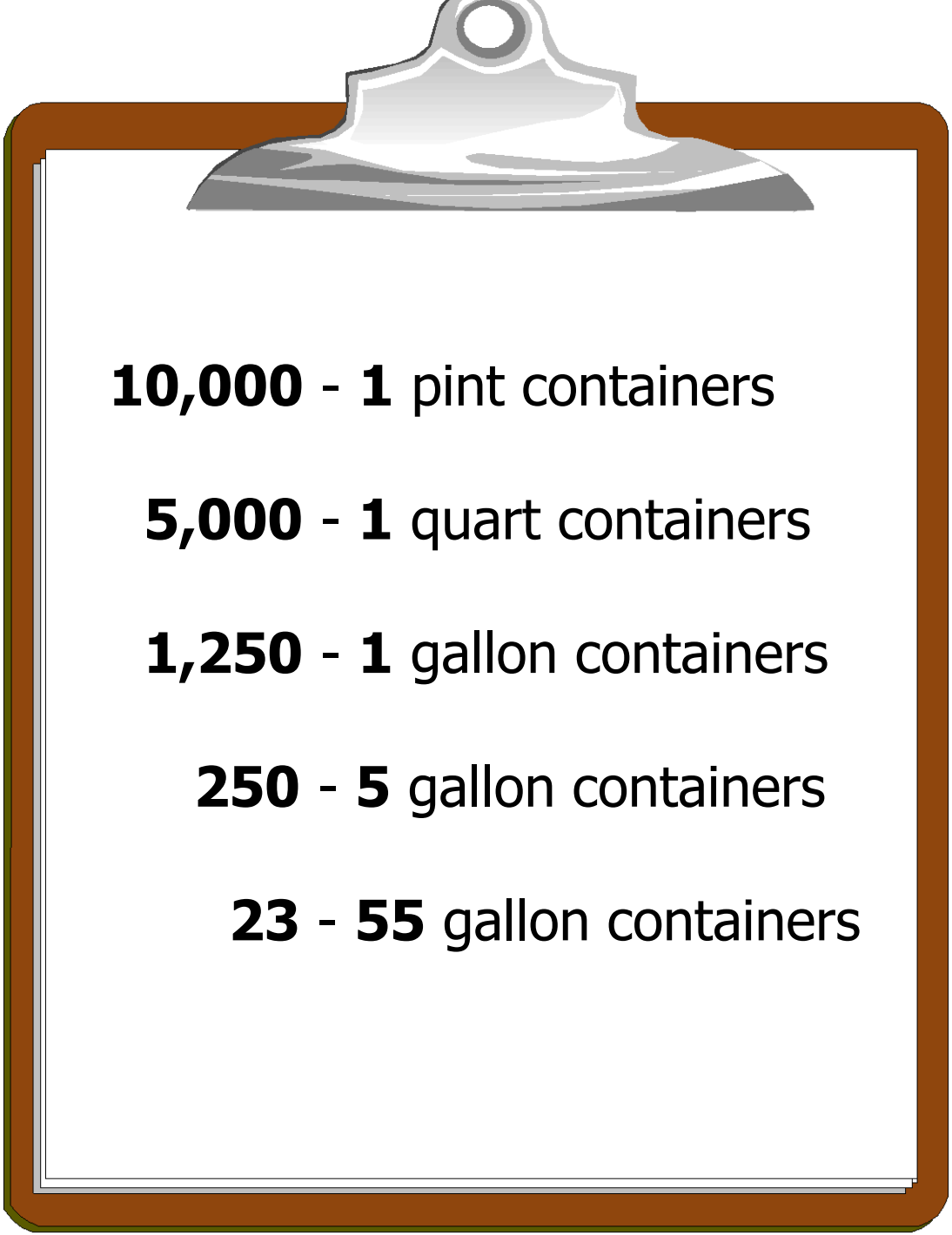
Regulated Substances



FYI…



A PINT A POUND
THE
WORLD AROUND


10,000 - **1** pint containers
5,000 - **1** quart containers
1,250 - **1** gallon containers
250 - **5** gallon containers
23 - **55** gallon containers

Extremely Hazardous Substances (EPCRA Section 302)

- Selection criteria are based on acute lethal toxicity
- 356 chemicals currently designated as EHSs
  - **Overlap with 138 chemicals with CERCLA hazardous substances**
- EPA can revise the list by adding or deleting
- Substances identified in 40 CFR part 355
- Within 60 days after a facility first becomes subject to the EHS requirements (EPCRA section 302/303).

Extremely Hazardous Substances (EPCRA Section 302)

"Facility" means all buildings, equipment, structure, and other stationary items that are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by, or under common control with, such person). Facility shall include man made structures in which chemicals are purposefully placed or removed through human means such that it functions as a containment structure for human use. For purposes of emergency release notification, the term includes motor vehicles, rolling stock, and aircraft.

Extremely Hazardous Substances (EPCRA Section 302)

DE MINIMIS EXEMPTION

The quantity of an hazardous chemical in a mixture or other trade name product is eligible for an exemption if the concentration of an EHS is less than or equal to one percent in the mixture, in which case you do not have to count that EHS.

United States Environmental Protection Agency

Office of Land and Emergency Management

EPA 550-B-19-003
June 2019
www.epa.gov/epcra

LIST OF LISTS

Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-To-Know Act (EPCRA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Section 112(r) of the Clean Air Act

- EPCRA Section 302 Extremely Hazardous Substances
- CERCLA Hazardous Substances
- EPCRA Section 313 Toxic Chemicals
- CAA 112(r) Regulated Chemicals for Accidental Release Prevention

http://www.epa.gov/sites/production/files/2015-03/documents/list_of_lists.pdf

LIST OF LISTS

NAME	CAS/313 Category Codes	Section 302 (EHS) TPQ	Section 304 EHS RQ	CERCLA RQ	Section 313	RCRA CODE	CAA 112(r) TQ
Lead sulfate	7446-14-2			10	313c		
Thallium(I) sulfate	7446-18-6	100/10,000	100	100	313c	P115	
Thallous sulfate	7446-18-6	100/10,000	100	100	313c	P115	
Lead phosphate	7446-27-7			10	313c	U145	
Cupric chloride	7447-39-4			10	313c		
Mercuric chloride	7487-94-7	500/10,000	500		313c		
Selenium sulfide	7488-56-4			10	313c	U205	
6-Nitrochrysene	7496-02-8				313+		
Titanium chloride (TiCl4) (T-4)-	7550-45-0	100	1,000	1,000	X		2,500
Titanium tetrachloride	7550-45-0	100	1,000	1,000	313		2,500
Sodium phosphate, dibasic	7558-79-4			5,000			
Lithium hydride	7580-67-8	100	100				
Sodium phosphate, tribasic	7601-54-9			5000			
Sodium arsenate	7631-89-2	1,000/10,000	1	1	313c		
Sodium bisulfite	7631-90-5			5,000			
Sodium nitrite	7632-00-0			100	313		
Borane, trifluoro-	7637-07-2	500	500		X		5,000
Boron trifluoride	7637-07-2	500	500		313		5,000
Lead arsenate	7645-25-2			1	313c		
Zinc chloride	7646-85-7			1,000	313c		
Hydrochloric acid	7647-01-0			5,000			
Hydrochloric acid (conc 37% or greater)	7647-01-0			5,000			15,000
Hydrochloric acid (aerosol forms only)	7647-01-0			5,000	313		
Hydrogen chloride (anhydrous)	7647-01-0	500	5,000	5,000	X		5,000
Hydrogen chloride (gas only)	7647-01-0	500	5,000	5,000	X		5,000
Antimony pentachloride	7647-18-9			1,000			
Phosphoric acid	7664-38-2			5,000			
Hydrofluoric acid	7664-39-3	100	100	100	X	U134	
Hydrofluoric acid (conc. 50% or greater)	7664-39-3	100	100	100	X	U134	1,000
Hydrogen fluoride	7664-39-3	100	100	100	313	U134	
Hydrogen fluoride (anhydrous)	7664-39-3	100	100	100	X	U134	1,000
Ammonia	7664-41-7	500	100	100			
Ammonia (anhydrous)	7664-41-7	500	100	100	X		10,000
Ammonia (conc 20% or greater)	7664-41-7			See ammonium hydroxide	X		20,000
Ammonia (includes anhydrous ammonia and aqueous ammonia from water dissociable ammonium salts and other sources; 10 percent of total aqueous ammonia is reportable under this listing)	7664-41-7				313		
Sulfuric acid (aerosol forms only)	7664-93-9	1,000	1,000	1,000	313		
Sulfuric acid	7664-93-9	1,000	1,000	1,000			
Sodium fluoride	7681-49-4			1,000			
Sodium hypochlorite	7681-52-9			100			
2,2-Dimethyl-3-(2-methyl-1-propenyl)cyclopropanecarboxylic acid (1,3,4,5,6,7-hexahydro-1,3-dioxo-2H-isoindol-2-yl)methyl ester	7696-12-0				X		

LIST OF LISTS

NAME	CAS/313 Category Codes	Section 302 (EHS) TPQ	Section 304 EHS RQ	CERCLA RQ	SECTION 313	RCRA CODE	CAA 112(r) TQ
Hydrofluoric acid	7664-39-3	100	100	100	X	U134	1,000
Ammonia (anhydrous)	7664-41-7	500	100	100	313		10,000
Sulfuric acid	7664-93-9	1,000	1,000	1,000			
Nitric acid	7697-37-2	1,000	1,000	1,000	313		
Phosphorus	7723-14-0	100	1	1			
Chlorine	7782-50-5	100	10	10	313		2,500

27

Regulatory Information

What is this information? ▶

EPA Consolidated List of Lists

Regulatory Name	CAS Number/ 313 Category Code	EPCRA 302 EHS TPQ	EPCRA 304 EHS RQ	CERCLA RQ	EPCRA 313 TRI
Sulfuric acid	7664-93-9	1000 pounds	1000 pounds	1000 pounds	
Sulfuric acid (aerosol forms only)	7664-93-9	1000 pounds	1000 pounds	1000 pounds	313

(EPA List of Lists, 2015)

DHS Chemical Facility Anti-Terrorism Standards (CFATS)

No regulatory information available.

OSHA Process Safety Management (PSM) Standard List

No regulatory information available.

http://www.cameochemicals.noaa.gov/

Sulfuric Acid/ EHS

TPQ = 1000 lbs

Other Service Batteries Locations:

- Pick-up Trucks and Towing Vehicles
- Boats and other Watercraft
- Emergency Power Generators
- Emergency Lighting
- Computer back-up power
- Fork lifts & other equipment

Sulfuric Acid

CAS# 7664-93-9

Weighs **15 lbs** per gallon (96-98% acid)

Specific Gravity, Liquid 1.841

Rule-of-thumb for a typical lead acid battery is about 20% sulfuric acid and 55% Lead

Safety Data Sheet - SDS

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENTS (Chemical/Common Names):	CAS No.:	% by Wt:	EC No.:
Lead and Lead Compounds, inorganic	7439-92-1	43-70 (average: 65)	231-100-4
Electrolyte (Sulfuric acid and water)	7664-93-9	20-44 (average: 25)	231-639-5
Antimony	7440-36-0	0-4 (average: <1)	231-146-5

Ammonia
(Anhydrous)

CAS # 7664-41-7

It weighs 6 pounds per gallon

Examples:

Refrigeration & water treatment

Ammonia Solution Con. 1% or Greater

CAS # 7664-41-7

It weighs 7.3 pounds per gallon

Examples: water-based paints & inks, cleaners, windshield fluids

Regulatory Information

What is this information?

EPA Consolidated List of Lists

Regulatory Name	CAS Number/ 313 Category Code	EPCRA 302 EHS TPQ	EPCRA 304 EHS RQ	CERCLA RQ	EPCRA 313 TRI	RCRA Code	CAA 112 (r) RMP TQ
Ammonia	7664-41-7	500 pounds	100 pounds	100 pounds			
Ammonia (anhydrous)	7664-41-7	500 pounds	100 pounds	100 pounds	X		10000 pounds
Ammonia (conc 20% or greater)	7664-41-7			see ammonium hydroxide	X		20000 pounds
Ammonia (includes anhydrous ammonia and aqueous ammonia from water dissociable ammonium salts and other sources; 10 percent of total aqueous ammonia is reportable under this listing)	7664-41-7				313		

"X" indicates that this is a second name for an EPCRA section 313 chemical already included on this consolidated list. May also indicate that the same chemical with the same CAS number appears on another list with a different chemical name.

(EPA List of Lists, 2015)

DHS Chemical Facility Anti-Terrorism Standards (CFATS)

		RELEASE			THEFT			SABOTAGE		
Chemical of Interest	CAS Number	Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue
Ammonia (anhydrous)	7664-41-7	1.00 %	10000 pounds	toxic						
Ammonia (conc. 20% or greater)	7664-41-7	20.00 %	20000 pounds	toxic						

(DHS, 2007)

OSHA Process Safety Management (PSM) Standard List

Chemical Name	CAS Number	Threshold Quantity (TQ)
Ammonia solutions (>44% ammonia by weight)	7664-41-7	15000 pounds
Ammonia, Anhydrous	7664-41-7	10000 pounds

(OSHA, 2011)

Commonly Used EHS Chemicals

CHEMICAL NAME	CAS #	EHS (TPQ)	RQ
Formaldehyde	CAS 50-00-0	500 lbs	100 lbs
Nicotine	CAS 54-11-5	100 lbs	100 lbs
Parathion	CAS 56-38-2	100 lbs	10 lbs
Cyclohexane	CAS 58-89-9	1000/10,000 lbs	1 lbs
Chloroform	CAS 67-66-3	10,000 lbs	10 lbs
Phenol	CAS 108-95-2	500/10,000 lbs	1000 lbs
Sodium Cyanide	CAS 143-33-9	100 lbs	10 lbs
Potassium Cyanide	CAS 151-50-8	100 lbs	10 lbs
Mercuric acetate	CAS 1600-27-7	500/10,000 lbs	500 lbs

CHEMICAL NAME	CAS #	EHS (TPQ)	RQ
Sulfur dioxide	CAS 7446-09-5	500 lbs	500 lbs
Sulfur trioxide	CAS 7446-11-9	100 lbs	100 lbs
Lithium hydride	CAS 7580-67-8	100 lbs	100 lbs
Hydrofluoric acid	CAS 7664-39-3	100 lbs	100 lbs
Hydrogen fluoride	CAS 7664-39-3	100 lbs	100 lbs
Nitric acid	CAS 7697-37-2	1,000 lbs	1,000 lbs
Phosphorus (yellow or white)	CAS 7723-14-0	100 lbs	1 lbs
Bromine	CAS 7726 -95-6	500 lbs	500 lbs

CHEMICAL NAME	CAS #	EHS (TPQ)	RQ
Chlorine	CAS 7782-50-5	100 lbs	10 lbs
Chromic chloride	CAS 10025-73-7	1/10,000 lbs	1 lbs
Ozone	CAS 10028-15-6	100 lbs	100 lbs
Sodium azide	CAS 26628-22-8	500 lbs	1000 lbs

The Development Process

- LEPC/TEPC shall appoint a chairperson
- LEPC/TEPC shall establish rules by which the committee shall function
- The rules shall include public notification and public input into the LEPC/TEPC process
- Distribution of the emergency plan

The Development Process

- LEPC/TEPC shall establish procedures for receiving and processing requests from the public for information
- LEPC/TEPC shall designation of an official to serve as coordinator for information

Plan Components

- Each LEPC/TEPC Shall Complete an Emergency Plan
- NRT 1 Hazardous Materials
- Emergency Planning Guide
- Update 2001 National Response Team
- Free standing or Part of a Comprehensive plan?

NRT-1

Hazardous Materials Emergency Planning Guide

Updated 2001

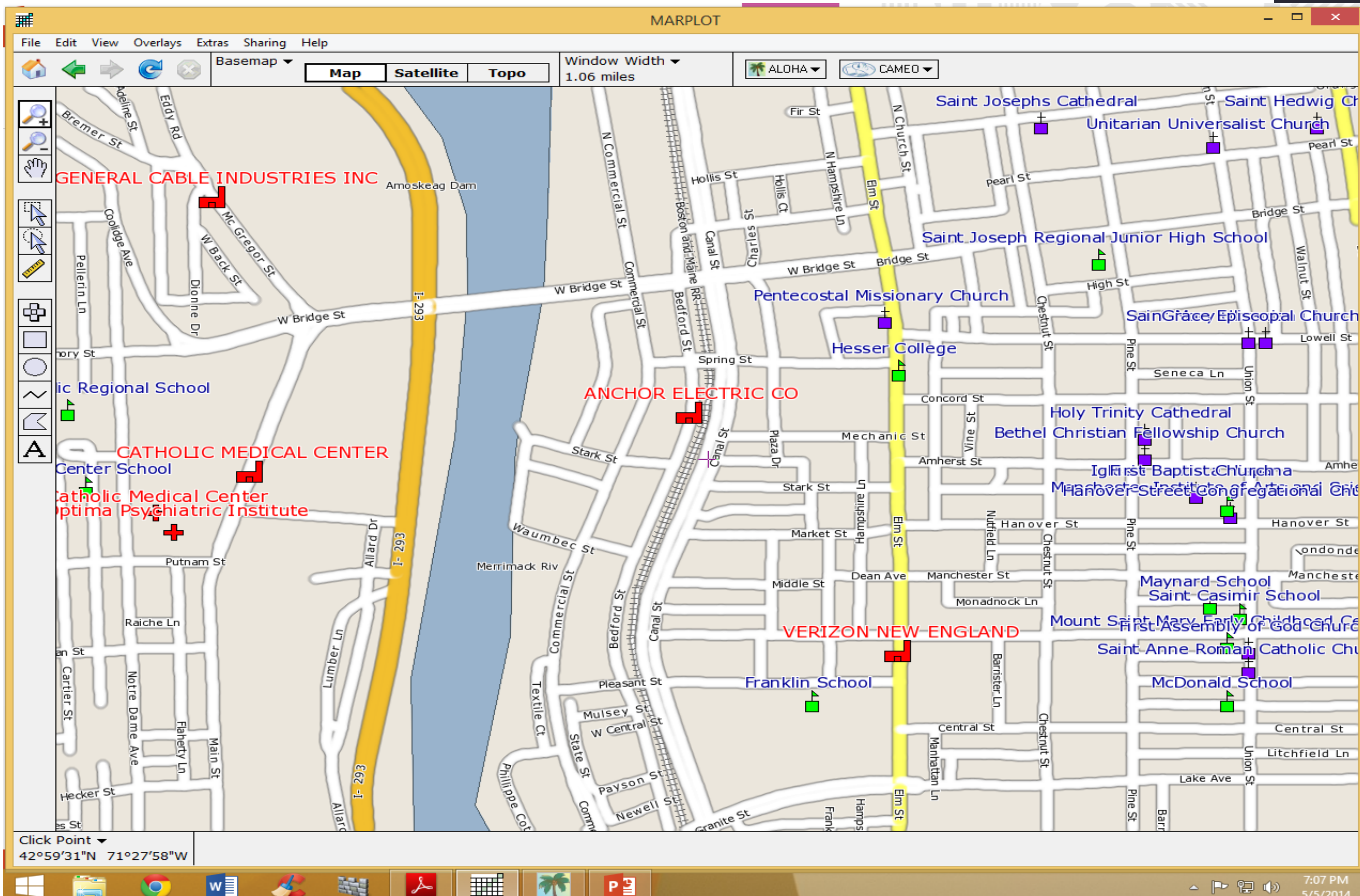
NATIONAL RESPONSE TEAM

Plan Components

- LEPC/TEPC shall evaluate the need for resources to develop, implement, and exercise the plan
- LEPC/TEPC shall make recommendations with respect to additional resources that may be required and the means for providing such additional resources

EPCRA 303(c): Each emergency plan shall include (but is not limited to) each of the following:

(1) Identification of facilities subject to the requirements of this subchapter that are within the emergency planning district, identification of routes likely to be used for the transportation of substances on the list of extremely hazardous substances referred to in section 11002(a) of this title, and identification of additional facilities contributing or subjected to additional risk due to their proximity to facilities subject to the requirements of this subchapter, such as hospitals or natural gas facilities.



MARPLOT
File
Edit
View
Overlays
Extras
Sharing
Help
Basemap
Map
Satellite
Topo
Window Width
1.06 miles
ALOHA
CAMEO
GENERAL CABLE INDUSTRIES INC
Amoskeag Dam
ANCHOR ELECTRIC CO
CATHOLIC MEDICAL CENTER
VERIZON NEW ENGLAND
Saint Josephs Cathedral
Unitarian Universalist Church
Saint Joseph Regional Junior High School
Pentecostal Missionary Church
Hesser College
Holy Trinity Cathedral
Bethel Christian Fellowship Church
Maynard School
Saint Casimir School
Saint Anne Roman Catholic Chu
McDonald School
Franklin School
Optima Psychiatric Institute
Merrimack Riv
W Bridge St
Elm St
Canal St
Commercial St
Bedford St
Spring St
Concord St
Mechanic St
Amherst St
Stark St
Market St
Hanover St
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5/5/2014

EPA

United States Environmental Protection Agency

Office of Solid Waste and Emergency Response (OS-120)

EPA 550-F-93-004
October 1993

HAZARDS ANALYSIS

ON THE MOVE

Between 1987 and 1989,U.S. Department of Transportation (DOT) officials reported almost 60,000 transportation incidents that resulted in an unintentional release of hazardous materials. How can you assess the transportation risks facing your community? Is your community prepared to face these risks'?

The purpose of this document is to help you as local planners (e.g., tribal and state LEPCs, and other planners) and responders, develop a method to determine what hazardous materials are being transported through your community and the priority areas of risk that warrant further analysis and study. By doing so, you can assess and improve existing strategies to minimize risk (both public and private) and the response capabilities within your jurisdiction.

SARA Title III (EPCRA) and Conducting a Commodity Flow Study

Number of Hazmat Accidents by Transportation Mode (1981–1989)

Mode of Transportation	Number of Incidents	Associated Deaths*	Associated Injuries*
Highway	48,907	113	1,762
Rail	8,620	0	611
Air	1,177	0	127
Other (includes freight forwarders and water transportation)	1,108	1	91
TOTAL	59,812	114	2,611

* Directly attributable to the presence of hazardous materials.

Source: U.S. DOT statistics on incidents reported as required by the Hazardous Materials Transportation Act of 1975

In the Emergency Planning and Community Right-to-Know Act (EPCRA), Congress recognized the risk to communities posed by the transportation of hazardous materials and required that emergency response plans developed by LEPCs identify the "routes likely to be used for the transportation of substances on the list of extremely hazardous substances...."

One way to approach this requirement. and to address all of the hazardous materials being transported through your community, is to conduct a hazardous materials commodity flow study (CFS). A CFS is an assessment of the types and volumes of materials moving through your community. For some communities, especially those in rural areas, transportation may pose the only hazardous materials risk. In light of the number of accidents that occur (see chart at left), identifying and understanding transportation-related risks are critical components of emergency preparedness and prevention. The goal of the CFS is to use the information collected to increase your preparedness, prevention, and response capabilities.

(continued on next page)

EPCRA 303(c): Each emergency plan shall include (but is not limited to) each of the following:

(2) Methods and procedures to be followed by facility owners and operators and local emergency and medical personnel to respond to any release of such substances.

Hazard Communication Safety Data Sheets (SDS)

Section 4, First-aid measures includes important symptoms/ effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

http://www.osha.gov/dsg/hazcom/ghs.html

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Safety Data Sheets with New OSHA Physical and Health Hazard Classes and Tier II Reporting

This document is intended to assist facility owners and operators in complying with Tier II reporting requirements. It includes a cross-walk between the old and new hazard categories, as well as answers to questions that EPA received from the regulated community and states.

https://www.epa.gov/epcra/safety-data-sheets-new-osha-physical-and-health-hazard-classes-and-tier-ii-reporting

Table 3
Cross-Walk: EPA's previous Hazard Categories and OSHA's HCS 2012 physical and health hazards

Physical Hazards (OSHA original - prior to adopting GHS in 2012)	**Physical Hazards (Reporting Years 1987 – 2016)** (OSHA's original physical hazards consolidated into three physical hazard categories for EPA use)	**Physical Hazards (Reporting Years 2017 and beyond)** (OSHA's 2012 physical hazards that EPA adopted in 2016)
Combustible liquid	**Fire** - (Flammable; Combustible liquid; Pyrophoric; Oxidizer)	Flammable (gases, aerosols, liquids, or solids)
Flammable		Pyrophoric (liquid or solid)
Oxidizer		Pyrophoric gas
Pyrophoric		Oxidizer (liquid, solid or gas)
Compressed Gas	**Sudden Release of Pressure** – (Explosive; Compressed Gas)	Explosive
Explosive		Gas under pressure
		Combustible Dust
Corrosive	**Reactive – (**Unstable Reactive; Organic Peroxide; Water Reactive)	Self-reactive
Organic Peroxide		Organic Peroxide
Unstable Reactive		Self-heating
Water Reactive		Corrosive to metal
		In contact with water emits flammable gas
		Hazard Not Otherwise Classified (HNOC)
Health Hazards (OSHA original - prior to adopting GHS in 2012)	**Health Hazards (Reporting Years 1987 – 2016)** (OSHA's original health hazards consolidated into two health hazard categories for EPA use)	**Health Hazards (Reporting Year 2017 and beyond)** (OSHA's 2012 health hazards that EPA adopted in 2016)
	Health Hazard (Immediate-Acute)	
Highly Toxic	Highly Toxic; Toxic; Irritant; Sensitizer; Corrosives & other hazardous chemicals that cause an adverse effect to a target organ and which effect usually occurs rapidly as a result of a short-term exposure and is of short duration.	Skin Corrosion or Irritation
Irritant		Acute Toxicity (any route of exposure
Sensitizer		Respiratory or Skin Sensitization
Toxic		Serious eye damage or eye irritation
Eye Hazard		Simple Asphyxiant
Skin Hazard		Aspiration Hazard
	Health Hazard (Delayed-Chronic)	
Kidney Toxin	Carcinogens & other hazardous chemicals that cause an adverse effect to a target organ and which effect generally occurs as a result of long term exposure and is of long duration.	Specific target organ toxicity (single or repeated exposure)
Liver Toxin		Reproductive Toxicity
Lung Toxin		Germ Cell Mutagenicity
Nervous System Toxin		Carcinogenicity

Hazard Not Otherwise Classified (HNOC)

Pyrophoric gas - "a chemical in a gaseous state that will ignite spontaneously in air at a temperature of 130 degrees F (54.4 degrees C) or below."

- Label (Appendix C.4.30): Danger. Catches fire spontaneously if exposed to air.

Simple asphyxiant - "a substance or mixture that displaces oxygen in the ambient atmosphere, and can thus cause oxygen deprivation in those who are exposed, leading to unconsciousness and death."

- Label (Appendix C.4.30): Warning. May displace oxygen and cause rapid suffocation.

Combustible dust - No specific definition but refer to OSHA's guidance Hazard Communication Guidance for Combustible Dusts, OSHA (3371-08-2009), and Combustible Dust National Emphasis Program Directive CPL 03-00-008

- Label elements: Warning. May form combustible dust concentrations in air.

Note: Paragraph (f)(4) may apply to materials shipped in solid form, which create combustible dust when processed

Figure 4.9

GHS Pictograms and Hazard Classes

		
▪ Oxidizers	▪ Flammables ▪ Self Reactives ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Organic Peroxides	▪ Explosives ▪ Self Reactives ▪ Organic Peroxides
		
▪ Acute toxicity (severe)	▪ Corrosives	▪ Gases Under Pressure
		
▪ Carcinogen ▪ Respiratory Sensitizer ▪ Reproductive Toxicity ▪ Target Organ Toxicity ▪ Mutagenicity ▪ Aspiration Toxicity	▪ Environmental Toxicity	▪ Irritant ▪ Dermal Sensitizer ▪ Acute toxicity (harmful) ▪ Narcotic Effects ▪ Respiratory Tract ▪ Irritation

Figure 4.11

ACUTE ORAL TOXICITY - Annex 1					
	Category 1	**Category 2**	**Category 3**	**Category 4**	**Category 5**
LD_{50}	£ 5 mg/kg	> 5 < 50 mg/kg	³ 50 < 300 mg/kg	³ 300 < 2000 mg/kg	³ 2000 < 5000 mg/kg
Pictogram					No symbol
Signal word	Danger	Danger	Danger	Warning	Warning
Hazard statement	Fatal if swallowed	Fatal if swallowed	Toxic if swallowed	Harmful if swallowed	May be harmful if swallowed

NFPA® OSHA® QUICK CARD™

Comparison of NFPA 704 and HazCom 2012 Labels

	 NFPA 704	 HazCom 2012
Purpose	Provides basic information for emergency personnel responding to a fire or spill and those planning for emergency response.	Informs workers about the hazards of chemicals in workplace under normal conditions of use and foreseeable emergencies.
Number System: NFPA Rating and OSHA's Classification System	0-4 0-least hazardous 4-most hazardous	1-4 1-most severe hazard 4-least severe hazard • The Hazard category numbers are NOT required to be on labels but are required on SDSs in Section 2. • Numbers are used to CLASSIFY hazards to determine what label information is required.

EPCRA 303(c): Each emergency plan shall include (but is not limited to) each of the following:

(3) Designation of a community emergency coordinator and facility emergency coordinators, who shall make determinations necessary to implement the plan.

TIER II INVENTORY FORM

- **FACILITY EMERGENCY COORDINATOR**
- Enter the name, title, email address, phone number and 24-hour phone number of the facility emergency coordinator.
- Note: This data element is only applicable to facilities subject to EPCRA section 302(c) emergency planning notification. Section 303(d)(1) of EPCRA requires facilities subject to the emergency planning notification requirement under Section 302(c) to designate a facility representative who will participate in the local emergency planning process as a facility emergency coordinator. This data element is also applicable to additional facilities designated by the Governor or the SERC under EPCRA section
- 302(b)(2)). EPA encourages facilities not subject to the emergency planning notification requirement also to provide this information, for effective emergency planning in your community.

EPCRA 303(c): Each emergency plan shall include (but is not limited to) each of the following:

(4) Procedures providing reliable, effective, and timely notification by the facility emergency coordinators and the community emergency coordinator to persons designated in the emergency plan, and to the public, that a release has occurred (consistent with the emergency notification requirements of section 11004 of this title).

EPCRA Section 304

Emergency Release Notification

LIST OF LISTS

NAME	CAS/313 Category Codes	Section 302 (EHS) TPQ	Section 304 EHS RQ	CERCLA RQ	SECTION 313	RCRA CODE	CAA 112(r) TQ
Hydrofluoric acid	7664-39-3	100	100	100	X	U134	1,000
Ammonia (anhydrous)	7664-41-7	500	100	100	313		10,000
Sulfuric acid	7664-93-9	1,000	1,000	1,000			
Nitric acid	7697-37-2	1,000	1,000	1,000	313		
Phosphorus	7723-14-0	100	1	1			
Chlorine	7782-50-5	100	10	10	313		2,500

United States Environmental Protection Agency

Office of Enforcement and Compliance Assurance (2248A)

EPA 300-N-02-001

EPA Enforcement Alert

Volume 5, Number 1 | Office of Regulatory Enforcement | January 2002

EPCRA/CERCLA: Hazardous Chemical Releases Above Certain Quantities Must Be Reported to Authorities

13 Companies Recently Penalized for Not Complying

The Emergency Planning and Community Right-to-Know Act (EPCRA), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) were enacted by Congress to provide citizens with information on chemicals, their uses and releases at facilities across the nation, and to provide the government with immediate notice to appropriately respond to releases. Most importantly, these laws are intended to ensure that federal, state and local emergency responders

About Enforcement Alert

EPCRA, CERCLA are Based on the Principle that

EPA Takes Enforcement Actions Against Noncompliers

The U.S. Environmental Protection Agency (EPA) recently took enforcement actions against 13 companies (see box page 2) for EPCRA and CERCLA

Accidental Chemical/Oil Release Notification Numbers:

- Local: 911
- State:
  - Connecticut 860-424-3338
  - Maine 800-452-4664
  - **Massachusetts 888-304-1133**
  - New Hampshire 800-852-3411
  - Rhode Island 401-222-3070 (24 hrs)
  - Vermont 800-641-5005
- National Response Center 800-424-8802
- ALL Three Calls are REQUIRED under Federal Law.

EPCRA, Section 304, Follow-up Notification

Written Report for LEPC and SERC:

Cause

Prevention

Health Effects

Within 30 Days

Reporting Requirements for Continuous Releases of Hazardous Substances, A Guide for Facilities on Compliance

EXHIBIT 2-7: EXAMPLES OF REPORTING SINGLE HAZARDOUS SUBSTANCES

In this example, your facility has a release which may qualify for reduced reporting as a continuous release. The hazardous substances released from the identified source (Stack A) are nitrogen dioxide (10102440) and nitric oxide (10102439).

The volume of nitrogen dioxide (NO_2) released in a 24-hour period is between 0 and 120 lbs. During the previous year, 960 lbs of NO_2 was released. The release occurs once per week in February and June for a total of 8 days per year. The amount of nitric oxide (NO) released is between 1 and 115 lbs. The release of NO occurs approximately 120 days each year. A total amount released last year was 13,800 lbs.

For these releases from the specific source, you must provide the information outlined below.

Name of Hazardous Substance	CASRN#	Normal Range (specify lbs. or kg) Upper Bound	Normal Range (specify lbs. or kg) Lower Bound	Total Annual Amount Released (specify lbs. or kg)	Number of Days Release Occurs (Per year)	Months of the Release
Nitrogen dioxide (NO_2)	10102440	120 lbs	0 lbs	960 lbs.	8	February; June
Nitric oxide (NO)	10102439	115 lbs	1 lb	13,800 lbs.	120	All 12 months

Reporting Requirements for Continuous Releases

Part 1: Reporting Requirements for Continuous Releases of Hazardous Substances (PDF) (104 K)

Part 2: Instructions and Procedures for Continuous Release Reporting (PDF) (87 K)

Appendix B: Suggested Continuous Release Reporting Format

Section I: General Information (PDF) (8 K)

Section II: Source Information-Part A (PDF) (8 K)

Section II: Source Information-Part B (PDF) (8 K)

Section II: Source Information-Part C (PDF) (9 K)

Section III: Substance Information (PDF) (9 K)

Appendix C: Suggested CR-ERNS Reporting Format--Addendum to TRI FORM R

Page 1 of the CR-ERNS Report -- Addendum to Form R (PDF) (6 K)

Page 2 of the CR-ERNS Report -- Addendum to Form R (PDF) (6 K)

Continuous Release Reporting Form

Form Approved OMB No. 2050-0086
Expiration Date: 12-31-2011

SECTION I: GENERAL INFORMATION

CR-ERNS Number:

Date of Initial Release:

Date of Initial Call to NRC:

Type of Report: Select from the drop-down list, the type of report that you are submitting

Signed Statement: *I certify that the hazardous substance releases described herein are continuous and stable in quantity and rate under the definitions in 40 CFR 302.8(b) or 355.32 and that all submitted information is accurate and current to the best of my knowledge.*

Date *Name and Position* *Signature*

Part A. Facility or Vessel Information

Name of Facility or Vessel

Person in Charge of Facility or Vessel
Name Position
Phone Number Alt Phone No.

Facility Address or Vessel Port of Registration
Street County
City State Zip Code

Dun and Bradstreet Number for Facility

Facility/Vessel Location

Latitude	Deg		Min		Sec	
Longitude	Deg		Min		Sec	

Vessel LORAN Coordinates

NOTE: Latitude/Longitude information can be obtained at the following websites: http://www.satsig.net/maps/lat-long-finder.htm, http://earth.google.com/, and http://www.census.gov/geo/landview/. Do not use P.O. Box, Rural Route or Mailing Address. Use physical location only.

Part B. Population Information

Population Density

Select from the drop-down list, the range that describes the population density within a one-mile radius of your facility or vessel.

Sensitive Populations and Ecosystems within One-Mile Radius

Sensitive Populations or Ecosystems (e.g., elementary schools, hospitals, retirement communities, or wetlands)	Estimated Distance and Direction from Facility, if Known

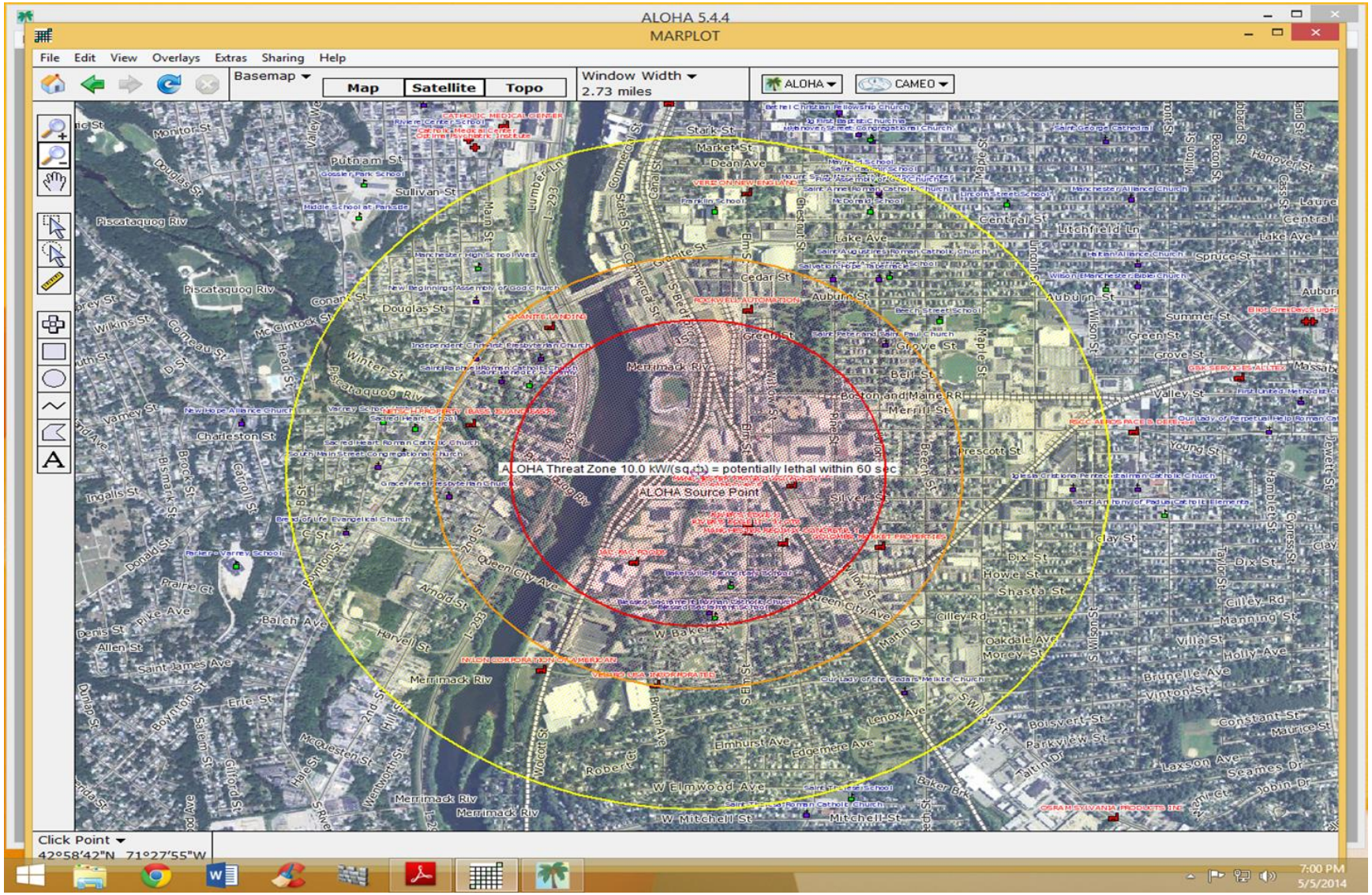
Continuous Release Reporting Requirements		National Response Center (NRC)	State Emergency Response Commission (SERC)	Local Emergency Planning Committee (LEPC)	Environmental Protection Agency (EPA) Regional Office
Standard Reporting Requirements	Initial Telephone Notification	✓	✓	✓	
	Initial Written Report		✓	✓	✓
	Follow-up Report				✓
Circumstantial Reporting Requirements	SSI Telephone Notification	✓	✓	✓	
	Change of Release Information[1] (New Release)	✓	✓	✓	✓
	Change in Other Information[2] (Letter)				✓

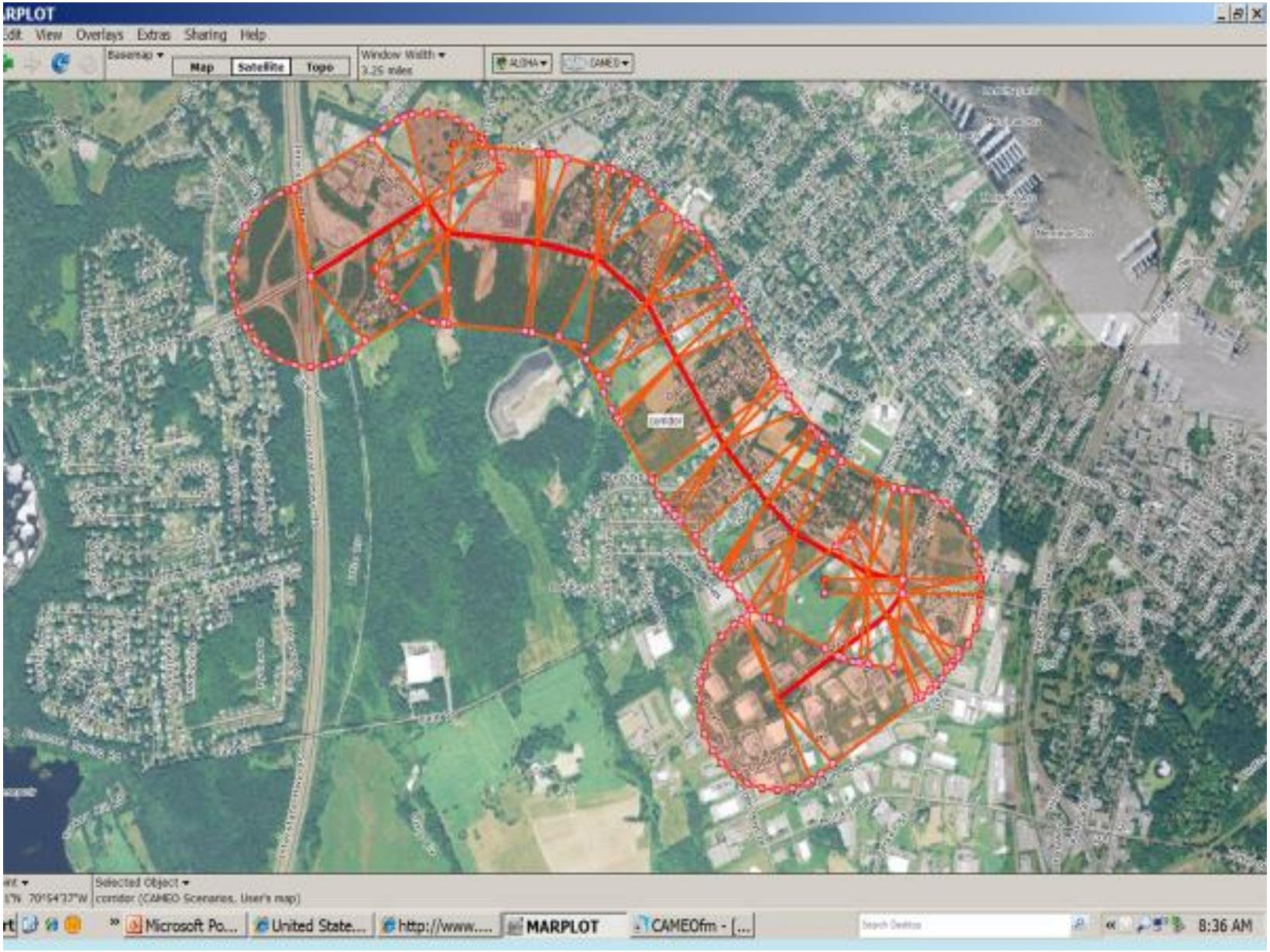
EPCRA 303(c): Each emergency plan shall include (but is not limited to) each of the following:

(5) Methods for determining the occurrence of a release, and the area or population likely to be affected by such release.

(5) Methods for determining the occurrence of a release, and the area or population likely to be affected by such release.

- ALOHA® (CAMEO® software suite)
  - Allows you to enter details about a real or potential chemical release, and then it will generate threat zone estimates for various types of hazards.
  - Can model toxic gas clouds, flammable gas clouds, BLEVEs (Boiling Liquid Expanding Vapor Explosions), jet fires, pool fires, and vapor cloud explosions.
  - Threat zone estimates are shown on a grid, and they can also be plotted on maps in MARPLOT®, Esri's ArcMap, Google Earth, and Google Maps. The red threat zone represents the worst hazard level, and the orange and yellow threat zones represent areas of decreasing hazard.
- CAMEO Screening and Scenarios - Within the Screening and Scenarios module, you can perform hazard analysis on accidental releases of locally stored hazardous chemicals.


ALOHA 5.4.4
MARPLOT
File Edit View Overlays Extras Sharing Help
Basemap
Map
Satellite
Topo
Window Width
2.73 miles
ALOHA
CAMEO
ALOHA Threat Zone 10.0 kW/(sq.m) = potentially lethal within 60 sec
ALOHA Source Point
Click Point
42°58'42"N 71°27'55"W
7:00 PM
5/5/2014


RPLOT
Edit View Overlays Extras Sharing Help
Basemap
Map
Satellite
Topo
Window Width
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ALOHA
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EPCRA 303(c): Each emergency plan shall include (but is not limited to) each of the following:

(6) A description of emergency equipment and facilities in the community and at each facility in the community subject to the requirements of this subchapter, and an identification of the persons responsible for such equipment and facilities.

EPCRA 303(c): Each emergency plan shall include (but is not limited to) each of the following:

(7) Evacuation plans, including provisions for a precautionary evacuation and alternative traffic routes.

EPCRA 303(c): Each emergency plan shall include (but is not limited to) each of the following:

(8) Training programs, including schedules for training of local emergency response and medical personnel.

EPCRA 303(c): Each emergency plan shall include (but is not limited to) each of the following:

(9) Methods and schedules for exercising the emergency plan.

EPCRA 303(d): Providing of Information

(1) EHS facility shall notify SERC/LEPC of a facility representative who will participate in the emergency planning process as a facility emergency coordinator

EPCRA 303(d): Providing of Information

(2) The owner or operator of the facility shall promptly inform the emergency planning committee of any relevant changes occurring at such facility as such changes occur or are expected to occur.

Within 30 days after the changes have occurred.

EPCRA 303(d): Providing of Information

(3) Upon request from the emergency planning committee, the owner or operator of the facility shall promptly provide information to such committee necessary for developing and implementing the emergency plan.

"ONE PLAN"

Integrated Contingency Plan (ICP)

The "One Plan" is a highly functional document for use in varied emergency situations, and provides a mechanism for complying with multiple emergency planning requirements.

Federal Register

Wednesday
June 5, 1996

Part II

Environmental Protection Agency

Department of Transportation
Coast Guard
Research and Special Programs Administration

Department of the Interior
Minerals Management Service

Department of Labor
Occupational Safety and Health Administration

The National Response Team's Integrated Contingency Plan Guidance; Notice


GUIDE
EMERGENCY MANAGEMENT GUIDE FOR
BUSINESS & INDUSTRY
A STEP-BY-STEP APPROACH
TO EMERGENCY PLANNING,
RESPONSE AND RECOVERY
FOR COMPANIES OF ALL SIZES
Sponsored by a Public-Partnership with
the Federal Emergency Management Agency

EPCRA Sections 311-312

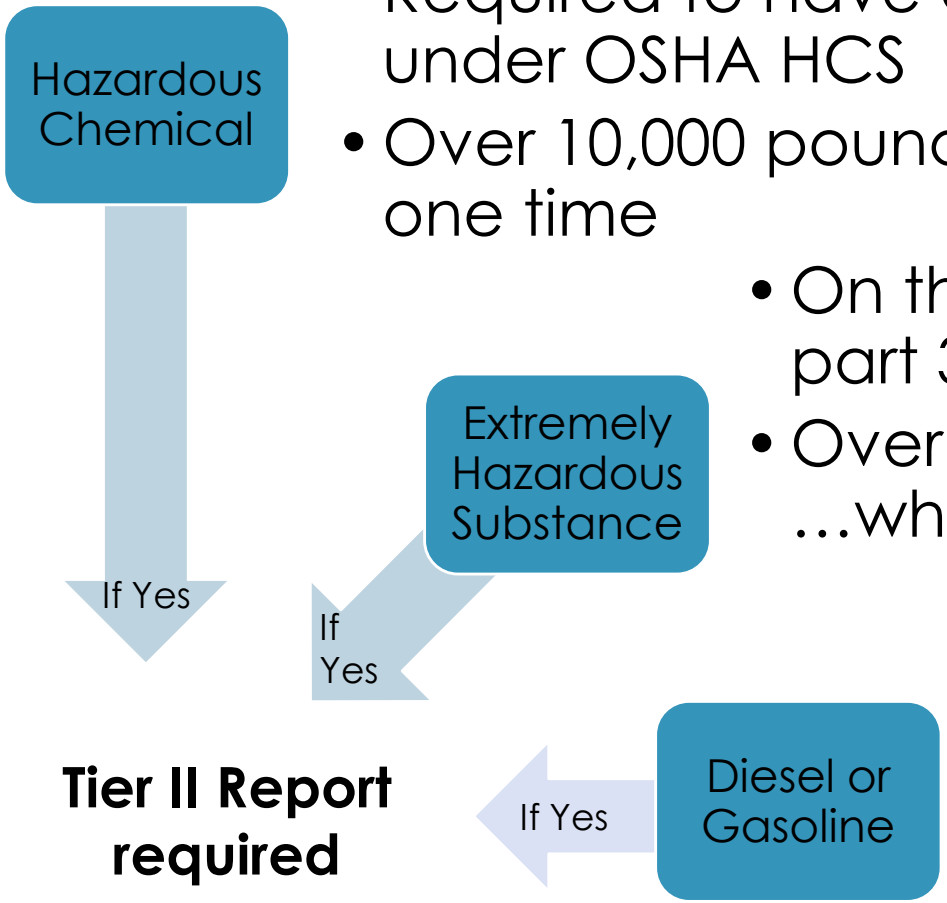
Hazardous Chemical Inventory Reporting

EPCRA Sections 311-312

Hazardous Chemical Inventory Reporting

311	Hazardous Chemical Inventory	SDS (MSDS) or List of Chemicals	OSHA Hazardous Chemicals (No Specific List)	10,000 #, or, if EHS, 500 #, or TPQ - whichever is lower	SERC/TERC LEPC/TEPC Local Fire Dept
312	Hazardous Chemical Inventory	Inventories, Hazards, and Locations (Tier I and II)	OSHA Hazardous Chemicals (No Specific List)	10,000 #, or, if EHS, 500 #, or TPQ - whichever is lower	SERC/TERC LEPC/TEPC Local Fire Dept

Do you need to submit a Tier II report?



- Required to have an SDS under OSHA HCS
- Over 10,000 pounds at any one time

- On the List of Lists or 40 CFR part 355 Appendix A or B
- Over the TPQ or 500 pounds …whichever is less

- Retail gas station exemption for underground storage tank
  - Under 100,000 gallons of diesel
  - Under 75,000 gallons of gasoline

Remember: the deadline to submit completed Tier II forms is March 1st of every year.

- EPA developed Tier2 Submit to help facilities prepare an electronic chemical inventory report: **https://www.epa.gov/epcra/tier2-submit-software**
- Many states accept Tier2 Submit, and the Tier II chemical inventory data can also be exported into the CAMEOfm emergency planning.
- Refer to the reporting requirements for your state for submission details: **https://www.epa.gov/epcra/state-tier-ii-reporting-requirements-and-procedures**

- EPCRA Fact sheet from Office of Emergency Management: https://www.epa.gov/sites/production/files/2017-08/documents/epcra_fact_sheet_overview_8-2-17.pdf
- EPA Web Portal for further questions: https://emergencymanagement.zendesk.com/hc/en-us/sections/202347817?page=1#articles
- The RMP Reporting Center: Monday – Friday 8AM - 5:30PM
  - For questions on RMP and EPCRA reporting software
  - 703-227-7650 · RMPRC@epacdx.net

Additional Resources

EPCRA Section 311

- Regulated facilities
- Facilities subject to OSHA's HAZCOM (29 CFR 1910.1200)

EPCRA 311: §11021. Material safety data sheets

(a) Basic requirement

(1) Submission of MSDS or list

The owner or operator of any facility which is required to prepare or have available a material safety data sheet for a hazardous chemical under the Occupational Safety and Health Act of 1970 [29 U.S.C. 651 et seq.] and regulations promulgated under that Act shall submit a material safety data sheet for each such chemical, or a list of such chemicals as described in paragraph (2), to each of the following:

(A) The appropriate local emergency planning committee.

(B) The State emergency response commission.

(C) The fire department with jurisdiction over the facility.

EPCRA 311: §11021. Material safety data sheets

(2) Contents of list

(A) The list of chemicals referred to in paragraph (1) shall include each of the following:

(i) A list of the hazardous chemicals for which a material safety data sheet is required under the Occupational Safety and Health Act of 1970 [29 U.S.C. 651 et seq.] and regulations promulgated under that Act, grouped in categories of health and physical hazards as set forth under such Act and regulations promulgated under such Act, or in such other categories as the Administrator may prescribe under subparagraph (B).

(ii) The chemical name or the common name of each such chemical as provided on the material safety data sheet.

(iii) Any hazardous component of each such chemical as provided on the material safety data sheet.

EPCRA 311: §11021. Material safety data sheets

(3) An owner or operator may meet the requirements of this section with respect to a hazardous chemical which is a mixture by doing one of the following:

(A) Providing information on the inventory form on each element or compound in the mixture which is a hazardous chemical. If more than one mixture has the same element or compound, only one listing on the inventory form for the element or compound at the facility is necessary.

(B) Providing information on the inventory form on the mixture itself.

Can the Tier II form serve as a list of hazardous chemicals?

Is the submission of a Tier II form an acceptable method of reporting a list of hazardous chemicals grouped by hazard category under Section 311 of EPCRA?

Section 311 of EPCRA requires facilities to submit copies of Material Safety Data Sheets (MSDSs) or a list of hazardous chemicals grouped by hazard category for those chemicals present above an applicable threshold. The language "grouped by hazardous category" in the regulations means that the facility needs to submit a list of hazardous chemicals with each of the hazard categories identified. **Since the Tier II form would certainly contain at least as much information as a list of hazardous chemicals grouped by hazard category it would be an acceptable submission for a list of MSDS chemicals under Section 311.** Since Section 312 report is due by March 1 for information from the previous calendar year, some facilities may submit their report between January 1 and March 1. In guidance published on July 13, 2010 (75 FR39852Opens a New Window.) EPA provided that States may allow facilities to submit section 312 report for hazardous chemicals that they acquire between October 1 and December 31 of any given calendar year. In order to be in compliance with section 311 reporting requirements, facilities are required to submit their section 312 report three months after acquiring a new hazardous chemical above the reporting threshold.

EPCRA 312: §11022. Emergency and hazardous chemical inventory forms

(a) Basic requirement

(1) The owner or operator of any facility which is required to prepare or have available a material safety data sheet for a hazardous chemical under the Occupational Safety and Health Act of 1970 [29 U.S.C. 651 et seq.] and regulations promulgated under that Act shall prepare and submit an emergency and hazardous chemical inventory form (hereafter in this chapter referred to as an "inventory form") to each of the following:

(A) The appropriate local emergency planning committee.

(B) The State emergency response commission.

(C) The fire department with jurisdiction over the facility.

Submit Tier 2 report(s) annually on or before March 1 for previous calendar year

Submit original list within 90 days of exceeding reporting thresholds

Update submission within 90 days of obtaining significant new information including new chemicals

Submit Sections 311/312 information to:

1. SERC and/or TERC
2. LEPC and/or TEPC
3. Local fire department

EPCRA Sections 311-312

EPCRA Sections 311/312 Exemptions:

1) Any food, food additive, color additive, drug, or cosmetic regulated by the Food and Drug Administration;

2) Any substance present as a solid in any manufactured item to the extent exposure to the sub-stance does not occur under normal conditions of use;

3) Any substance to the extent it is used for personal, family, or household purposes, or is present in the same form and concentration as a product packaged for distribution and use by the general public;

4) Any substance to the extent it is used in a research laboratory or a hospital or other medical facility under the direct supervision of a technically qualified individual; and

5) Any substance to the extent it is used in routine agricultural operations or is a fertilizer held for sale by a retailer to the ultimate customer.

A retail gas station means a retail facility engaged in selling gasoline and/or diesel fuel principally to the public for motor vehicle use on land

- For gasoline (all grades combined) at a retail gas station, the threshold level is 75,000 gallons (or approximately 283,900 liters), if the tank(s) was stored entirely underground and was in compliance at all times during the preceding calendar year with all applicable Underground Storage Tank (UST) requirements at 40 CFR part 280 or requirements of the State UST program approved by the Agency under 40 CFR part 281.
- For diesel fuel (all grades combined) at a retail gas station, the threshold level is 100,000 gallons (or approximately 378,500 liters), if the tank(s) was stored entirely underground and the tank(s) was in compliance at all times during the preceding calendar year with all applicable Underground Storage Tank (UST) requirements at 40 CFR part 280 or requirements of the State UST program approved by the Agency under 40 CFR part 281.

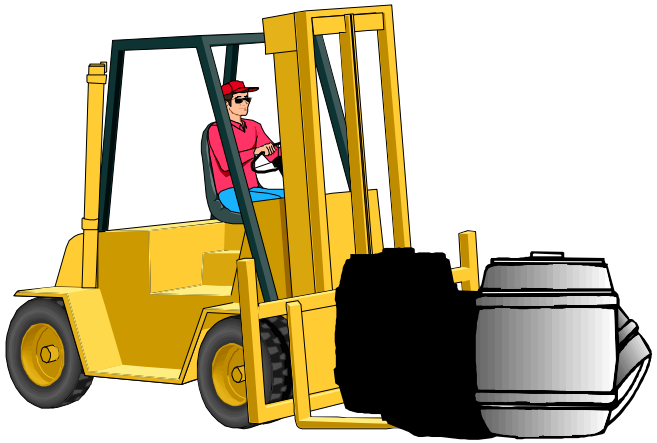
Table 3
Cross-Walk: EPA's previous Hazard Categories and OSHA's HCS 2012 physical and health hazards

Physical Hazards (OSHA original - prior to adopting GHS in 2012)	**Physical Hazards (Reporting Years 1987 – 2016)** (OSHA's original physical hazards consolidated into three physical hazard categories for EPA use)	**Physical Hazards (Reporting Years 2017 and beyond)** (OSHA's 2012 physical hazards that EPA adopted in 2016)
Combustible liquid	**Fire** - (Flammable; Combustible liquid; Pyrophoric; Oxidizer)	Flammable (gases, aerosols, liquids, or solids)
Flammable		Pyrophoric (liquid or solid)
Oxidizer		Pyrophoric gas
Pyrophoric		Oxidizer (liquid, solid or gas)
Compressed Gas	**Sudden Release of Pressure** – (Explosive; Compressed Gas)	Explosive
Explosive		Gas under pressure
		Combustible Dust
Corrosive	**Reactive –** (Unstable Reactive; Organic Peroxide; Water Reactive)	Self-reactive
Organic Peroxide		Organic Peroxide
Unstable Reactive		Self-heating
Water Reactive		Corrosive to metal
		In contact with water emits flammable gas
		Hazard Not Otherwise Classified (HNOC)
Health Hazards (OSHA original - prior to adopting GHS in 2012)	**Health Hazards (Reporting Years 1987 – 2016)** (OSHA's original health hazards consolidated into two health hazard categories for EPA use)	**Health Hazards (Reporting Year 2017 and beyond)** (OSHA's 2012 health hazards that EPA adopted in 2016)
	Health Hazard (Immediate-Acute)	
Highly Toxic	Highly Toxic; Toxic; Irritant; Sensitizer; Corrosives & other hazardous chemicals that cause an adverse effect to a target organ and which effect usually occurs rapidly as a result of a short-term exposure and is of short duration.	Skin Corrosion or Irritation
Irritant		Acute Toxicity (any route of exposure
Sensitizer		Respiratory or Skin Sensitization
Toxic		Serious eye damage or eye irritation
Eye Hazard		Simple Asphyxiant
Skin Hazard		Aspiration Hazard
	Health Hazard (Delayed-Chronic)	
Kidney Toxin	Carcinogens & other hazardous chemicals that cause an adverse effect to a target organ and which effect generally occurs as a result of long term exposure and is of long duration.	Specific target organ toxicity (single or repeated exposure)
Liver Toxin		Reproductive Toxicity
Lung Toxin		Germ Cell Mutagenicity
Nervous System Toxin		Carcinogenicity

Petroleum Products

CAS #	LIQUID	CONVERSION FACTOR Lbs/Gal
8006-61-9	Gasoline, all types	6.08 lbs 1644 gal
68334-30-5	Diesel Fuel	6.40 lbs 1562 gals
8008-20-6	Kerosene	6.40 lbs 1562 gals
68476-30-2	#2 Fuel Oil	6.40 lbs 1562 gals
	Motor Oil	7.20 lbs 1388 gals

CAS #	LIQUID	CONVERSION FACTOR
74-98-6	Propane LP Gas	4.00 Lbs / Gal



Size	Dimensions	Approx. Weight
120 gal	24" x 68"	480
150 gal	24" x 84"	600
200 gal	30" x 78"	800
250 gal	30" x 93"	1,000
320 gal	30" x 119"	1,280
475 gal	37" x 115"	1,900
500 gal	37" x 120"	2,000
1000 gal	41" x 194"	4,000

OIL, [TRANSFORMER]

OIL, [MINERAL] CAS # 8012-95-1

STEAM

LPG CAS # 68476-85-7
1075 FLAMMABLE GAS

NITROGEN, REFRIGERATED LIQUID
CAS #7727-37-9
1977 NON-FLAMMABLE GAS

OXYGEN GAS, REFRIGERATED LIQUID

CAS # 7782-44-7

1073 NON-FLAMMABLE GAS, OXIDIZER

HELIUM CAS # 7440-59-7

1046 NON-FLAMMABLE GAS

ACETYLENE CAS # 74-86-2

1001 FLAMMABLE GAS

NITROUS OXIDE CAS # 10024-97-2

1070 NON-FLAMMABLE GAS, OXIDIZER

CAUSTIC SODA, SOLUTION CAS # 1310-73-2

1824 CORROSIVE

POTASSIUM HYDROXIDE, SOLUTION

CAS # 1310-58-3

1814 CORROSIVE

SODIUM METABISULFITE CAS # 7681-57-4
7757-74-6 1759

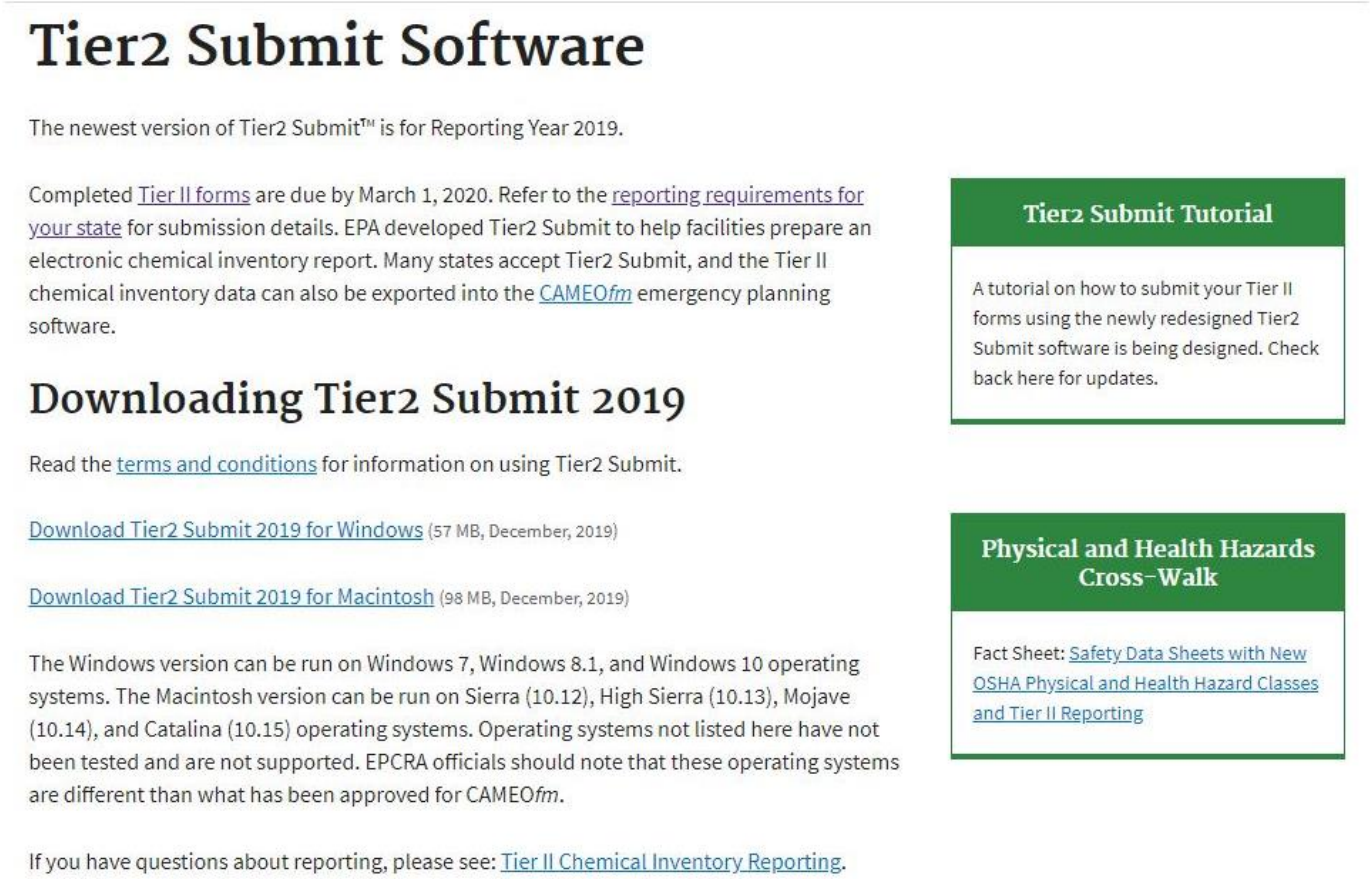
LEAD CAS # 7439-92-1

SILICA, CRYSTALLINE – QUARTZ CAS # 14808-60-7

Salt Solutions

• Aluminum Chloride	CAS# 7446-70-0
• Ammonium Chloride	CAS# 12125-02-9
• Calcium Bromide	CAS# 71626-99-8
• Calcium Chloride	CAS# 10035-04-8
• Calcium Sulfate	CAS# 778-18-9
• Ferrous Sulfate	CAS# 7782-63-0
• Potassium Chloride	CAS# 7447-40-7
• Sodium Chloride	CAS# 7647-14-5

Where do I find the new Tier2 Submit Software?



Tier2 Submit Software

The newest version of Tier2 Submit™ is for Reporting Year 2019.

Completed Tier II forms are due by March 1, 2020. Refer to the reporting requirements for your state for submission details. EPA developed Tier2 Submit to help facilities prepare an electronic chemical inventory report. Many states accept Tier2 Submit, and the Tier II chemical inventory data can also be exported into the CAMEO*fm* emergency planning software.

Downloading Tier2 Submit 2019

Read the terms and conditions for information on using Tier2 Submit.

Download Tier2 Submit 2019 for Windows (57 MB, December, 2019)

Download Tier2 Submit 2019 for Macintosh (98 MB, December, 2019)

The Windows version can be run on Windows 7, Windows 8.1, and Windows 10 operating systems. The Macintosh version can be run on Sierra (10.12), High Sierra (10.13), Mojave (10.14), and Catalina (10.15) operating systems. Operating systems not listed here have not been tested and are not supported. EPCRA officials should note that these operating systems are different than what has been approved for CAMEO*fm*.

If you have questions about reporting, please see: Tier II Chemical Inventory Reporting.

Tier2 Submit Tutorial

A tutorial on how to submit your Tier II forms using the newly redesigned Tier2 Submit software is being designed. Check back here for updates.

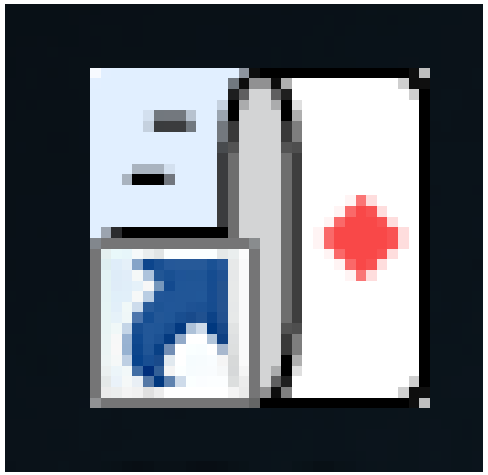
Physical and Health Hazards Cross-Walk

Fact Sheet: Safety Data Sheets with New OSHA Physical and Health Hazard Classes and Tier II Reporting

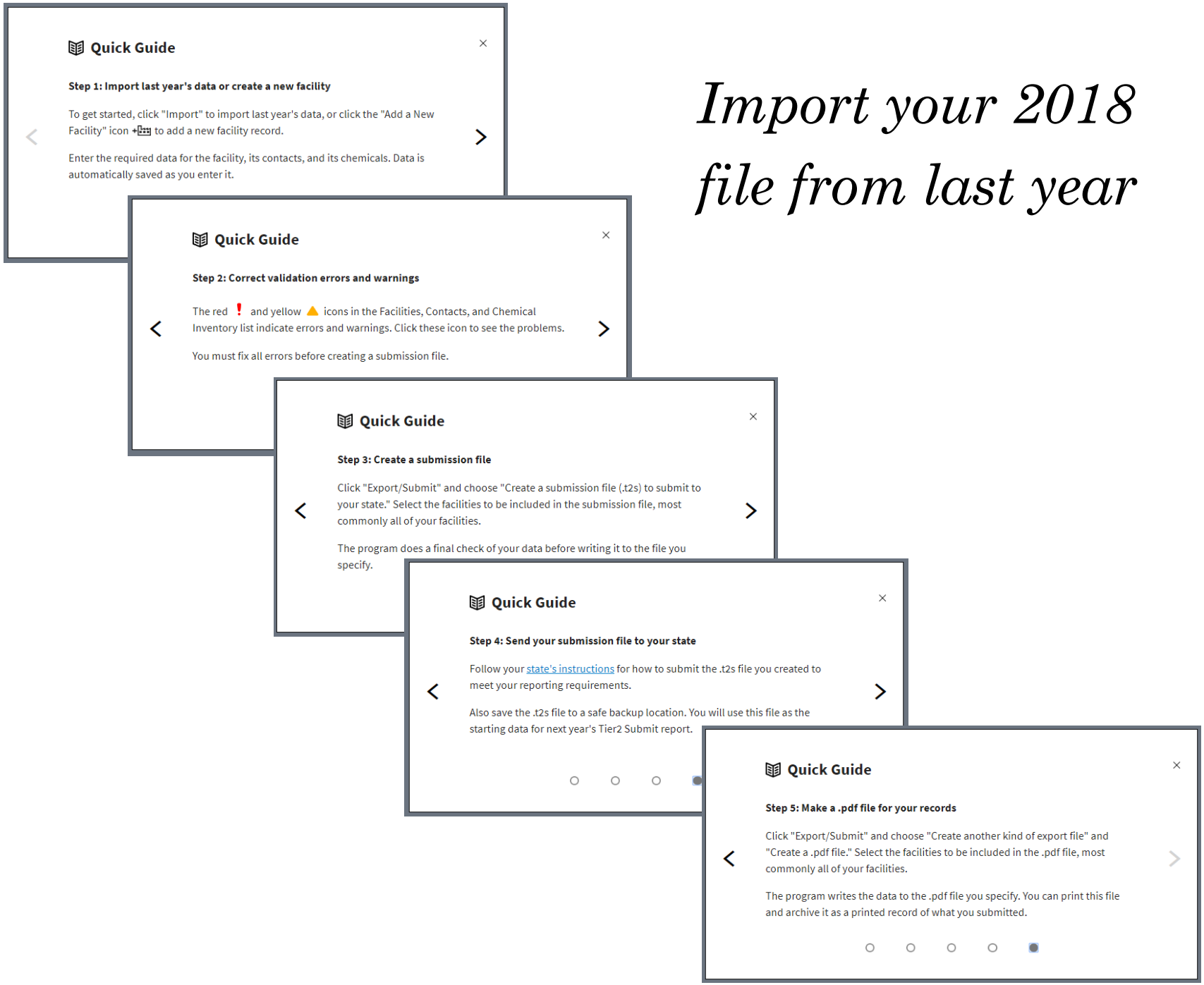
https://www.epa.gov/epcra/tier2-submit-software

What has changed?

- Redesigned interface completely for a smoother user experience.
- Added real-time validation that catches validation errors as users type them, and reports the validation status of a record at any moment.
- Added a map view of latitude and longitude coordinates.
- Added ability to export and import in sets of .csv files.
- Updated state-specific fields.
- Revised help section.



Import your 2018 file from last year



Tier2 Submit Demonstration

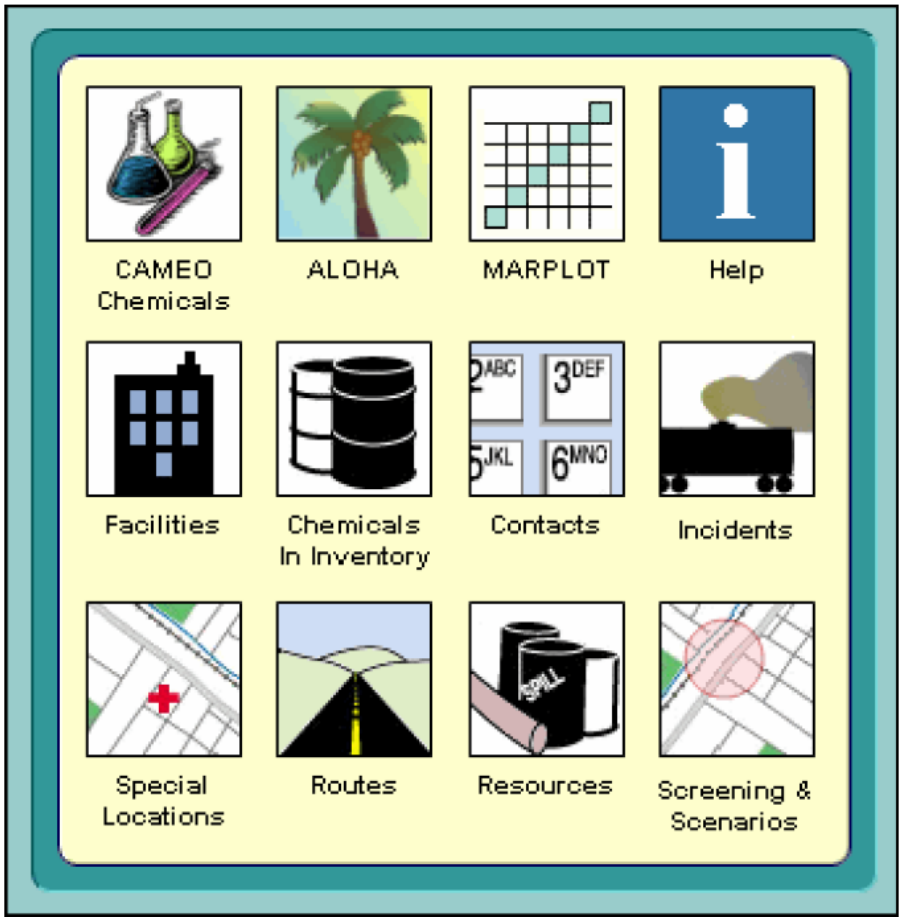
Use Tier2 Submit Software to create the electronic submission file.

You are not finished yet!

You must submit the Tier2 Submit file directly to your state. Tier2 Submit does not send it anywhere. It stores it on your computer for you to send.

Each state is unique - specific instructions for your state are here. Check your state each year for Tier2 Submit instructions, as they may change.

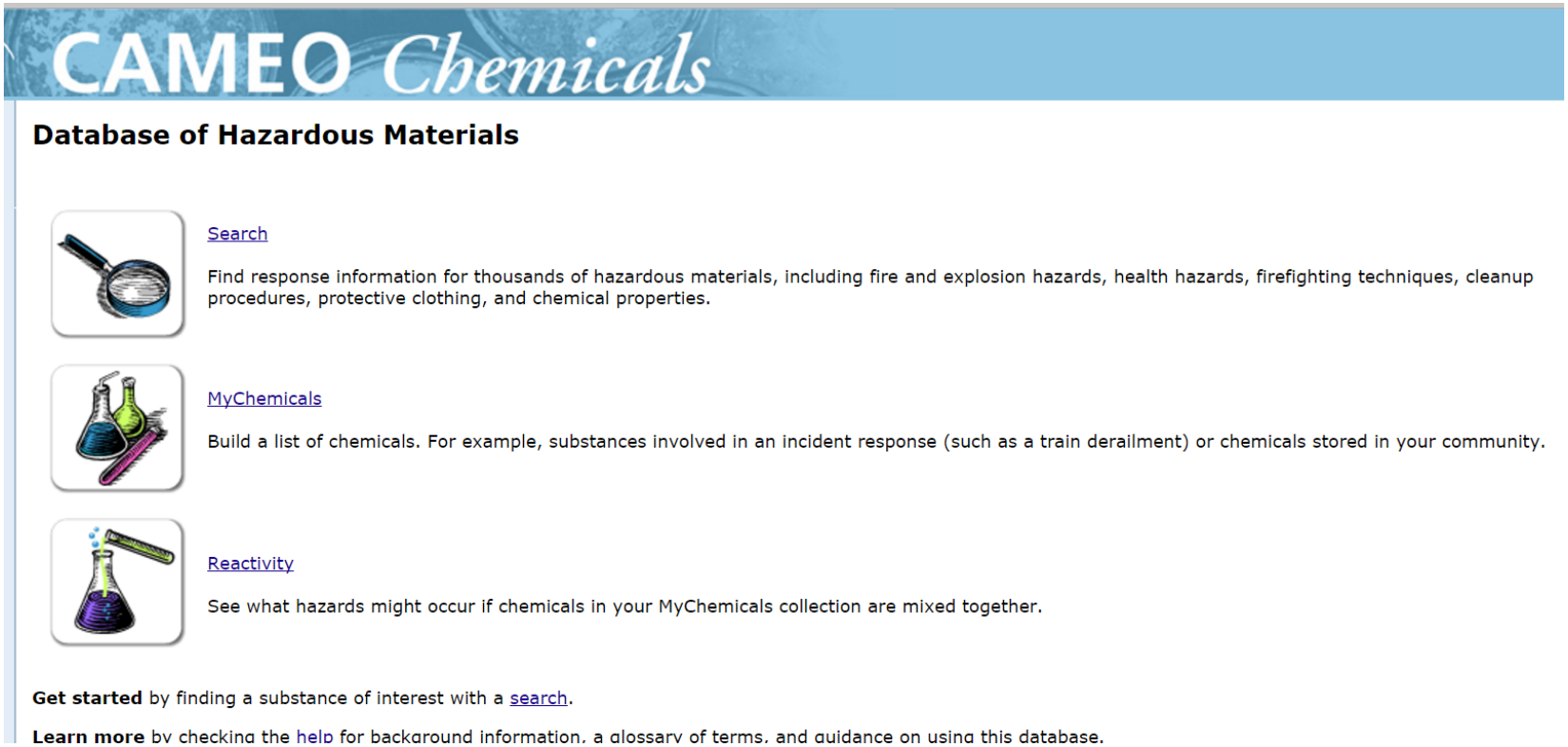
Computer-Aided Management of Emergency Operations (CAMEO)



Over the years, emergency planning has become more complicated by an increase in man-made and natural disasters.

CAMEO has successfully adapted to global changes with updated versions that allow for one comprehensive emergency plan for your organization.

CAMEO Chemicals features an **extensive chemical database.**



What is chemical reactivity and how is it predicted?

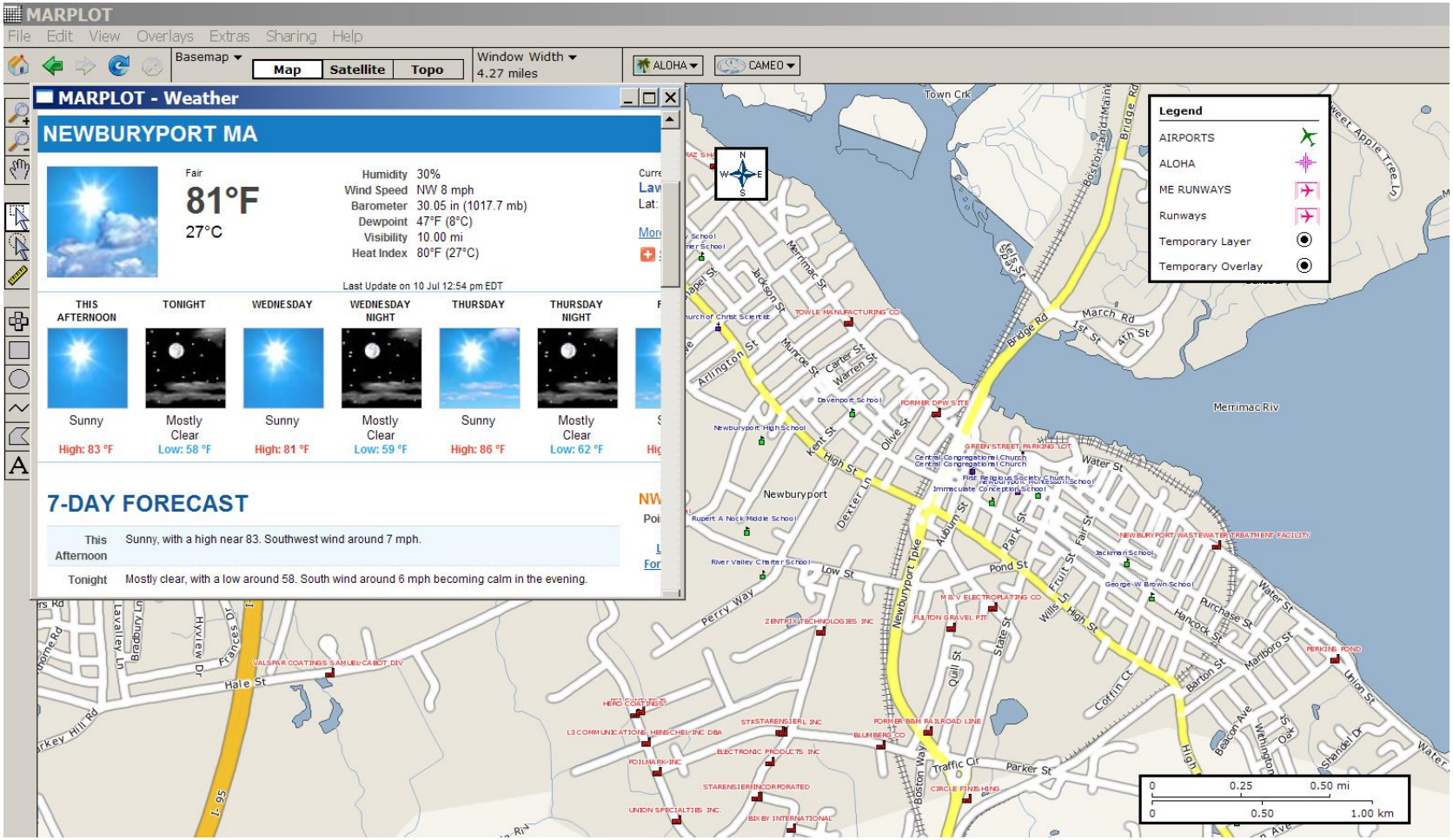
Compatibility Chart

This chart provides an overview of the reactivity predictions. For more details, click on a cell or scroll down the page.

How do I read this chart?

	AMMONIA, ANHYDROUS	
CHLORINE	**Incompatible** Corrosive Explosive Generates gas Generates heat Intense or explosive reaction Toxic	CHLORINE
SULFURIC ACID	**Incompatible** Generates gas Generates heat Intense or explosive reaction	**Incompatible** Explosive Generates gas Intense or explosive reaction Toxic

MARPLOT (Mapping Application for Response, Planning, and Local Operational Tasks)



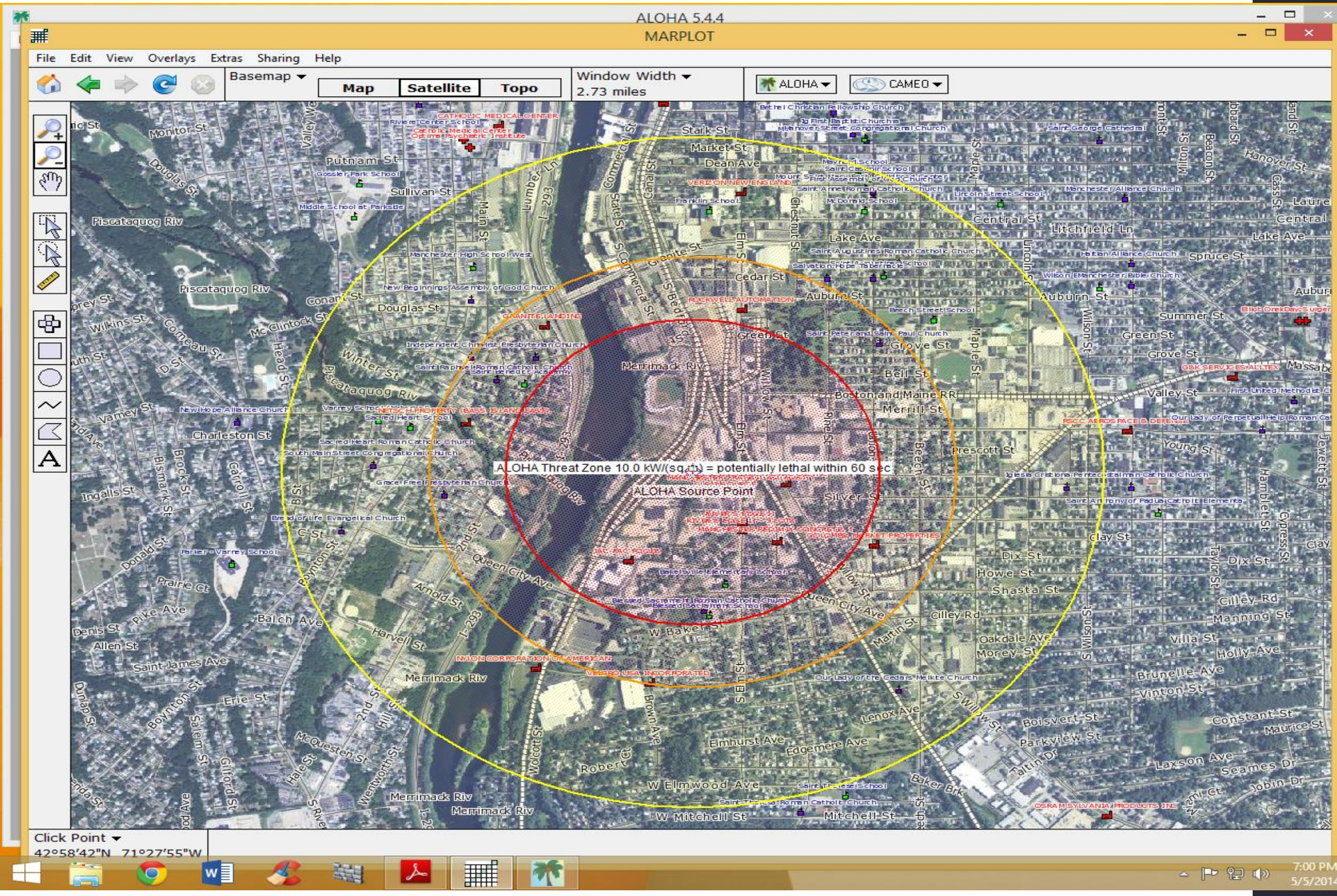

95
Moseley Woods Park
Spofford St
Old Ferry Road
Carr Island
Town Creek
Bridge Rd
Ferry Rd
Pine Hill Rd
Evergreen Golf Course
Ferry Rd
Atkinson Common
Ram Island
St Marys Cemetery
Belleville Cemetery
Maudslay State Park
Storey Ave
High St
Merrimac St
1
Merrimack River
Low St
113
Cherry Hill Estates
High Street Neighborhood
Anna Jaques Hospital
Broad St
Rings Island
Wildwood Dr
Bartlett Mall
State St
South End
Low St
Turkey Hill Rd
Hale St
Graf Rd
High St
Downtown
Joppa
1A
Lord Timothy Dexter Industrial Grn
Oak Hill Cemetery
Water St
Parker St
Common Pasture
Newbury
Scotland Rd
Hanover St
Green St
High Rd
Middle Rd
Boston Rd

ALOHA

- ALOHA is the hazard modeling program for the CAMEO software suite, which is used widely to plan for and respond to chemical emergencies.
- http://www.epa.gov/cameo/aloha-software

Key Program Features

- Generates a variety of scenario-specific output, including threat zone plots, threat at specific locations, and source strength graphs.
- Calculates how quickly chemicals are escaping from tanks, puddles, and gas pipelines—and predicts how those release rates change over time.
- Models many release scenarios: toxic gas clouds, BLEVEs (Boiling Liquid Expanding Vapor Explosions), jet fires, vapor cloud explosions, and pool fires.
- Evaluates different types of hazard (depending on the release scenario): toxicity, flammability, thermal radiation, and overpressure.
- Models the atmospheric dispersion of chemical spills on water.


ALOHA 5.4.4
MARPLOT
File Edit View Overlays Extras Sharing Help
Basemap
Map Satellite Topo
Window Width
2.73 miles
ALOHA
CAMEO
ALOHA Threat Zone 10.0 kW/(sq m) = potentially lethal within 60 sec
ALOHA Source Point
Merrimack Riv
Click Point
42°58'42"N 71°27'55"W
7:00 PM
5/5/2014

OSHA PSM - EPA RMP

- The OSHA Process Safety Management (PSM) standard (29 CFR 1910.119) was promulgated in
- 1992

- CLEAN AIR ACT SECTION 112(r): ACCIDENTAL RELEASE PREVENTION / RISK MANAGEMENT PLAN (RMP) RULE
- 40 CFR part 68 (risk management program requirements)
- June 21, 1999

OSHA PSM vs. EPA CAA 112(r) Thresholds

- CAA 112(r) has 27 chemicals not listed in PSM
- □ PSM has about 79 chemicals not listed in CAA 112(r)
- □ Thresholds
- • Most CAA 112(r) threshold quantities (TQs) are higher than OSHA's, with some exceptions
- • Methyl chloride: EPA—10,000 lbs.; OSHA—15,000 lbs.
- EPA has lower concentrations (e.g., aqueous ammonia)

Risk Management Plan (RMP) Accident Release Prevention

- Clean Air Act, Section 112(r)
- 40 CFR Part 68
- 139 subject chemicals
- 77 acutely toxic/63 flammable
- Thresholds: 500-20,000 lbs
- Three Program Levels
- LEPC Coordination & Corporation

Comparable EPA & OSHA References

Program 3 Prevention Program	EPA RMP 40 CFR	OSHA PSM 29 CFR
Process Safety Information (PSI)	§ 68.65	§ 1910.119(d)
Process Hazard Analysis (PHA)	§ 68.67	§ 1910.119(e)
Operating Procedures	§ 68.69	§ 1910.119(f)
Training	§ 68.71	§ 1910.119(g)
Mechanical Integrity	§ 68.73	§ 1910.119(j)
Management of Change (MOC)	§ 68.75	§ 1910.119(l)
Pre-Startup Review	§ 68.77	§ 1910.119(i)
Compliance Audits	§ 68.79	§ 1910.119(o)
Incident Investigation	§ 68.81	§ 1910.119(m)
Employee Participation	§ 68.83	§ 1910.119(c)
Hot Work Permit	§ 68.85	§ 1910.119(k)
Contractors	§ 68.87	§ 1910.119(h)

LIST OF LISTS

NAME	CAS/313 Category Codes	Section 302 (EHS) TPQ	Section 304 EHS RQ	CERCLA RQ	SECTION 313	RCRA CODE	CAA 112(r) TQ
Hydrofluoric acid	7664-39-3	100	100	100	X	U134	1,000
Ammonia (anhydrous)	7664-41-7	500	100	100	313		10,000
Sulfuric acid	7664-93-9	1,000	1,000	1,000			
Nitric acid	7697-37-2	1,000	1,000	1,000	313		
Phosphorus	7723-14-0	100	1	1			
Chlorine	7782-50-5	100	10	10	313		2,500

ACCIDENT PREVENTION AND RESPONSE MANUAL

For

Anhydrous Ammonia Refrigeration System Operators

U.S. Environmental Protection Agency Region 7

June 2015

(Fourth Edition)

EPA-907-B-1-9001

http://www.epa.gov/sites/production/files/2015-05/documents/accident_prevention_ammonia_refrigeration_5-20-15.pdf

AMMONIA REFRIGERATION

Key Safety Measures Document

- Identifying Hazards
- Operating Activities
- Maintenance/Mechanical Integrity
- Machinery Room and System Design
- Emergency Actions

www.epa.gov/sites/production/files/2018-05/documents/listofkeymeasurements.pdf

AMMONIA REFRIGERATION
Compliance Assistance Tools and Resources

- Contains industry-specific information for the implementation of the Chemical Accident Risk Reduction (CARR) National Compliance Initiative (NCI).
- Provides lists and descriptions of tools and resources broken out by the following types: EPA, EPA Partnerships, and Trade Associations

www.epa.gov/sites/production/files/2017-11/documents/complianceassistance-ammoniarefrigerationsector0617.pdf

Appendix E: Supplemental Risk Management Program Guidance for Ammonia Refrigeration Facilities

(May 2004) Note: This appendix replaces the former stand-alone document "Risk Management Program Guidance for Ammonia Refrigeration." This appendix is intended for facilities with ammonia refrigeration systems (e.g., food processors and distributors, refrigerated warehouses). It covers only anhydrous ammonia and provides offsite consequence analyses that are specific to the ways in which ammonia is handled in an ammonia refrigeration system.

http://www.epa.gov/rmp/general-rmp-guidance-appendix-e-supplemental-risk-management-program-guidance-ammonia

General Duty Clause

CAA 112(r)(1)

United States Environmental Protection Agency
Office of Solid Waste and Emergency Response
Office of Enforcement and Compliance Assurance
EPA 550-B00-002
May 2000
www.epa.gov/ceppo/

EPA

OECA

CEPPO

GUIDANCE FOR IMPLEMENTATION OF THE GENERAL DUTY CLAUSE CLEAN AIR ACT SECTION 112(r)(1)

Chemical Emergency Preparedness and Prevention Office

Printed on recycled paper

42 USC 7412(r)(1):

(r) Prevention of Accidental Releases

(1) Purpose and General Duty - It shall be the objective of the regulations and programs authorized under this subsection to prevent the accidental release and to minimize the consequences of any such release of any substance listed pursuant to paragraph (3) or any other extremely hazardous substance.

The owners and operators of or stationary sources producing, processing, handling storing such substances have a general duty, in the same manner and to the same extent as section 654, title 29 of the United States Code…

42 USC 7412(r)(1):

- …to identify hazards which may result from such releases using appropriate hazard assessment techniques,

- to design and maintain a safe facility taking such steps as are necessary to prevent releases, and

- to minimize the consequences of accidental releases which do occur.

Quick Comparison of CAA Section 112(r): GDC and RMP

General Duty Clause

- Stationary sources
- that manage *extremely hazardous substances* must:
  - Identify hazards
  - Design and maintain a safe facility so as to prevent releases
  - Minimize consequences of releases that do occur

RMP Rule

- Stationary sources
- With listed chemicals
- Over certain thresholds in a process
- Must submit RMP plan and
- Follow detailed regulations that flesh out the general duties

General Duty Clause Pilot
Traditional Enforcement:

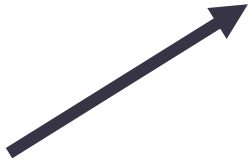
- Serious deficiencies found on several Region 1 GDC inspections
- These detailed enforcement cases overwhelm our inspection resources
- Need more efficient way to improve safety
- If owners had a better understanding of the hazards, they might fix some of the problems on their own

General Duty Clause Pilot
What it's all about:

Purpose: Improve compliance at 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, and (b) meet with responders.



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

General Duty Clause Pilot: 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?
4. Any significant releases in the last 5 years?

If there is an accidental release over the reporting threshold

Notify these three:

1. **Local (LEPC/TEPC)**: 911
2. **State (SERC/TERC)**:
   - Connecticut 860-424-3338
   - Maine 800-452-4664
   - Massachusetts 888-304-1133
   - New Hampshire 800-852-3411
   - Rhode Island 401-222-3070 (24 hrs)
   - Vermont 800-641-5005
3. **National Response Center**: 800-424-8802

Remember: the deadline to submit your EPCRA Tier 2 Report is March 1st of every year

- Download Tier2 Submit software: https://www.epa.gov/epcra/tier2-submit-software
- EPA Web Portal for further questions: https://emergencymanagement.zendesk.com/hc/en-us/sections/202347817?page=1#articles
- The RMP Reporting Center: Monday – Friday 8AM - 5:30PM
  - For questions on RMP and EPCRA reporting software
  - 703-227-7650 · RMPRC@epacdx.net

EPA eDisclosure

- Web based "eDisclosure" portal launched December 2015
- Allows entities to promptly disclose violations and submit compliance certification under EPA's Audit policy
  - eDisclosure: **https://www.epa.gov/compliance/epas-edisclosure**
  - EPA Audit Policy: **https://www.epa.gov/compliance/epas-audit-policy**

A regulated entity has ***21 days from the time it discovers that a violation has***, or may have, occurred to disclose the violation in writing to EPA. Discovery is when any officer, director, employee or agent of the facility has an objectively reasonable basis for believing that a violation has, or may have occurred. Entities must now make almost all disclosures through the eDisclosure System.

EPA eDisclosure

Contact Us with any Further Questions

- Len Wallace, EPA Region 1
  - 617-918-1835
  - Wallace.Len@epa.gov
- Janet Bowen, EPA Region 1
  - 617-918-1795
  - Bowen.Janet@epa.gov
- Janet will send a copy of this presentation to everyone who registered for today's workshop