

The Chlorine Institute Overview



Agenda

- Who is The Chlorine Institute (CI)?
- Membership & Benefits
- Organizational Chart
- Issue Team & Task Group Functions
- Chlorine Stewardship
- Resources & Access
- Webpage & Social Media
- Contact Us

What is The Chlorine Institute?

- Non-profit technical trade association, established in 1924
- Focused on advancing safe, secure, environmentally compatible, and sustainable production, distribution and use of CI mission chemicals
- Develops technical & safety-related publications with industry best practices
- Provides emergency response training
- Works with DOT, OSHA, EPA, DHS & Transport Canada to ensure reasonable regulations



Mission Chemicals

Chlorine
Caustic Soda & Caustic Potash
Sodium Hypochlorite
Hydrochloric Acid
Anhydrous Hydrogen Chloride
Vinyl Chloride

The Chlorine Institute Membership

Today, there are 196 member companies (North American and International):

- Chlorine Producers & Packagers
- Bleach Manufacturers
- End Users (Industrial & Water Treatment)
- Equipment Manufacturers and Suppliers
- Engineering Consultants
- Emergency Response Contractors

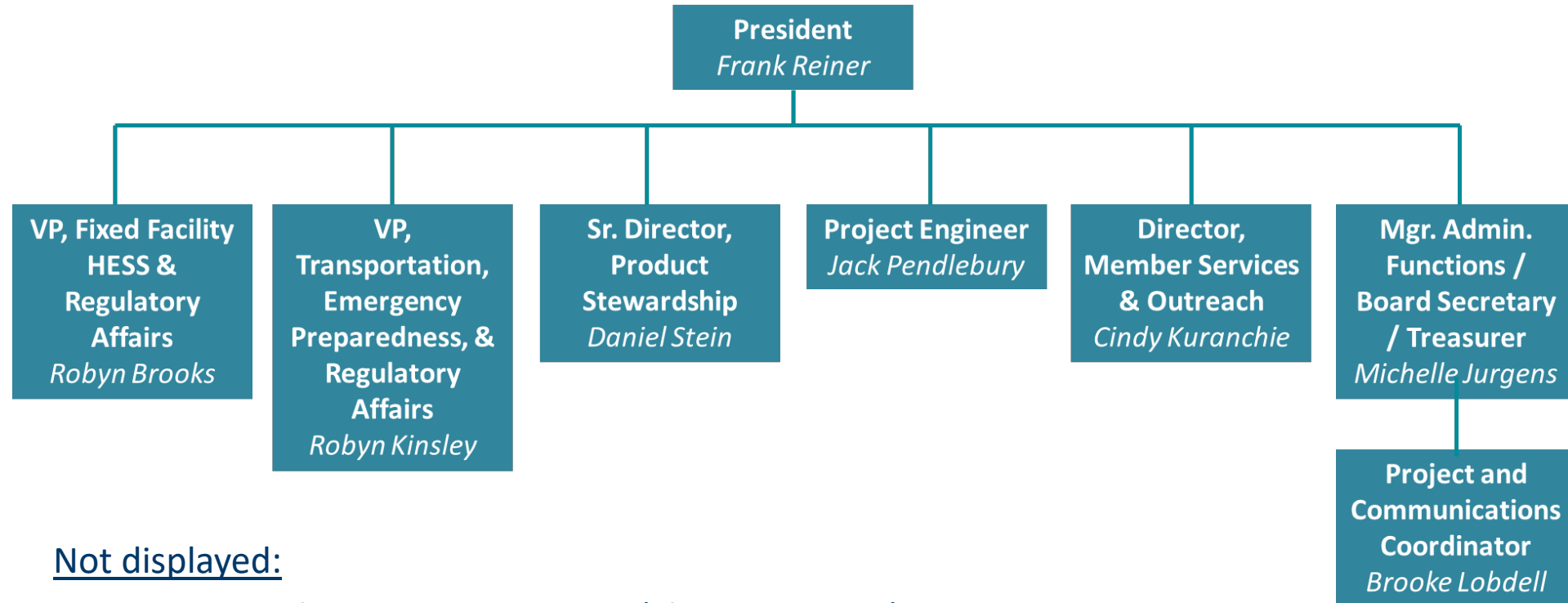
Represents ~90% North American Chlorine Production Capacity



Member Benefits

- See CI Webpage for full details. Selected Highlights:
 - Leadership development opportunities for employees serving on CI Issue Teams and Board of Directors
 - Liaison work with government agencies / departments to provide technical information and emphasize the need for sound science in the development of federal regulation
 - Monthly technical newsletters detailing developments relevant to your operations and highlighting compliance assistance resources for federal regulations
 - Monthly production reporting
 - Annual Safety & Environmental Performance Awards

Organizational Chart



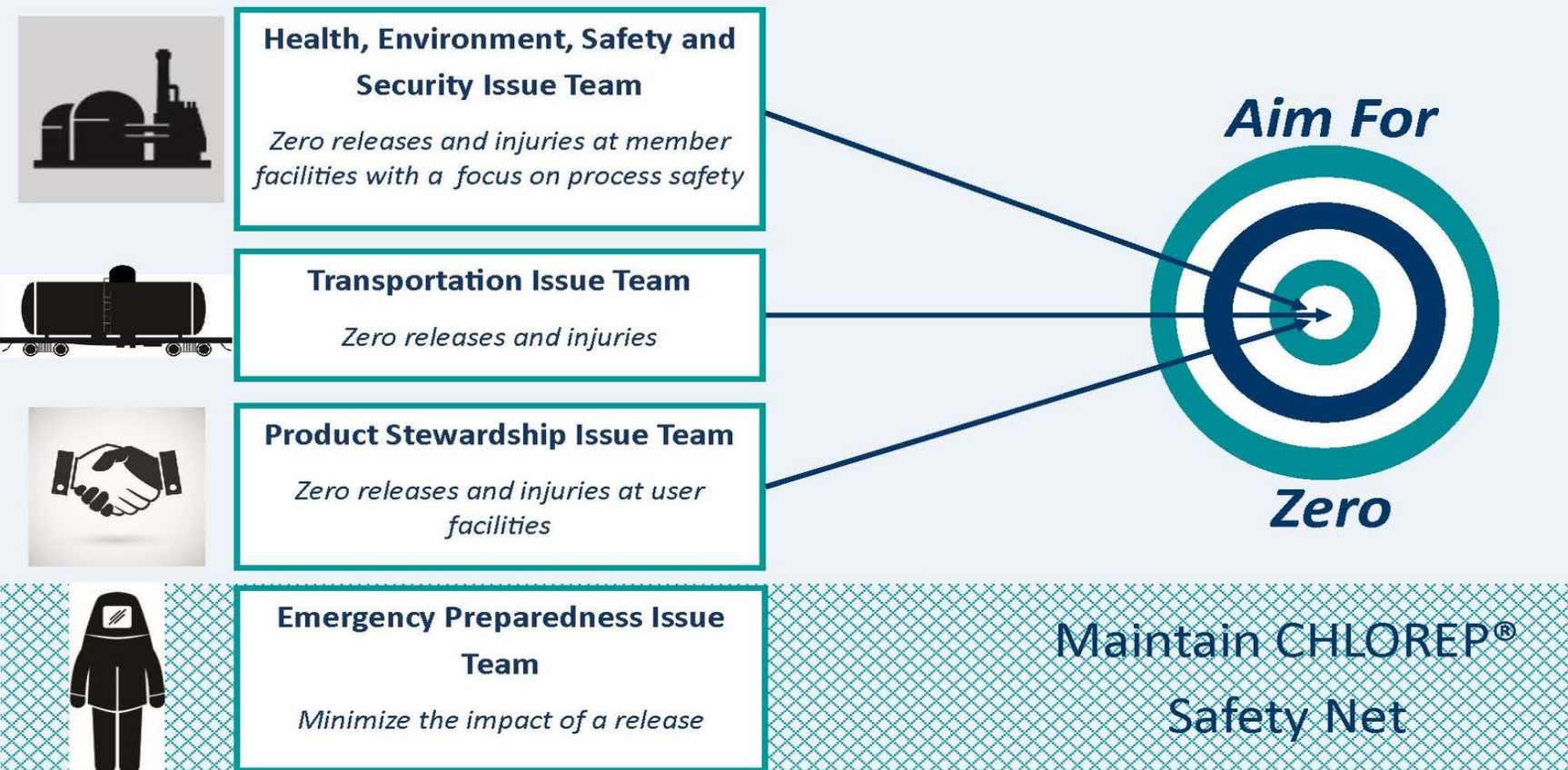
Not displayed:

- Part time administrative support (Florence Byrne)
- Third-party Legal (DLA Piper LLP US) & Accounting (UHY LLP)

Issue Team Structure

The Chlorine Institute exists to support the chlor-alkali industry in advancing safe, secure, environmentally compatible, and sustainable production, distribution, and use of its mission chemicals*.

**CI's mission chemicals: chlorine, sodium and potassium hydroxides, sodium hypochlorite, the distribution of vinyl chloride monomer (VCM), and the distribution and use of hydrogen chloride.*



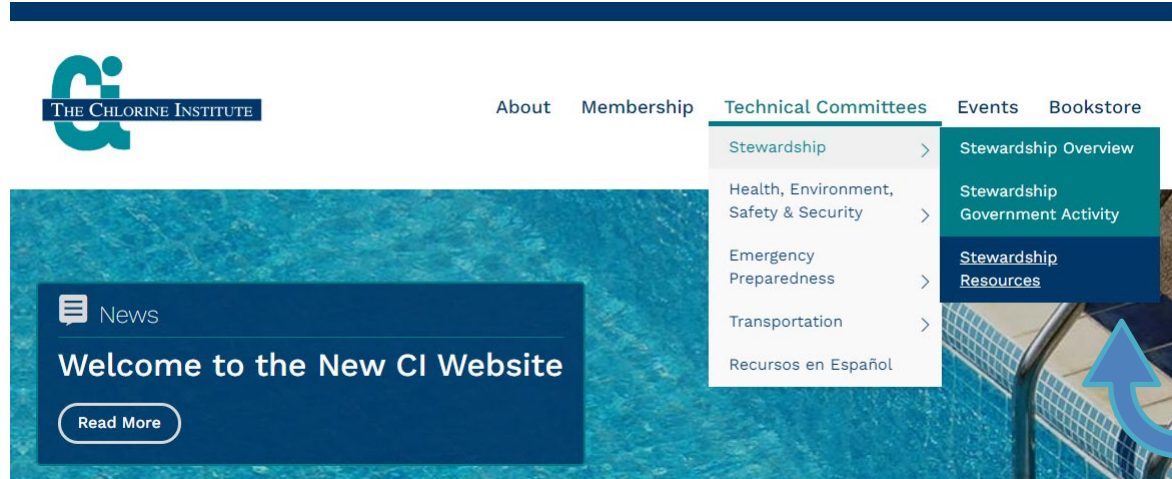
Chlorine Stewardship

...A Foundational Principle

- All members who handle chlorine sign a safety/security commitment annually to:
 - Follow Chlorine Institute guidance on safe handling, storage, and transport
 - Submit injury and illness data to CI
 - Have an emergency response plan in place and perform periodic drills
 - Perform customer assessments

Note: This commitment is separate and different from ACC's Responsible Care program.

Chlorine Stewardship (cont.)



All chlorine stewardship checklists updated and posted to CI Webpage

Chlorine Stewardship Checklists

The Chlorine Institute has prepared a letter that describes the reasons why we developed the below checklists and made their use (like in-kind) a condition of CI membership: [Explanatory Letter](#) *member log-in required

Checklist 1) *Bulk Chlorine Customer Safety & Security*

Checklist 2) *Packaged Chlorine Customer Safety & Security*

Checklist 3) *Packaged Chlorine Distributor Customer Safety & Security* (See also: Letter to Accompany Checklist 3)



Resources for Members: Annual Safety Report

- Members-only reports for facilities to compare their performance to industry performance
- Performance Indicator Report
 - Lists number of incidents, by member category
 - Contains description of chlor-alkali incidents
- Transparent Data
 - Benchmarking: Lists injury rate, by individual facility



Resources for Members:

Member Exchanges


- In-person, closed meetings where members discuss focused topics and/or incidents
- Past topics:
 - Cylinder and ton internal inspections
 - Knowledge transfer and succession
 - Line break procedures
 - Safety system impairment practices
 - Process safety techniques



Resources for Members:

Safety Alerts

- 1-2 Page Descriptions of an incident
- Anonymous descriptions
- Published quarterly




Safety Alert

Alert Date: December 2016

Type of Incident: Caustic Release/Material Incompatibility

Location: Chlorine Production Facility



Incident Description:
Caustic spilled from a manual butterfly valve from the Caustic Recirculation tank. While the operator was trying to make the valve seat off, the stem and handle came out and sprayed caustic out of containment and onto the earth.

Immediate Cause:
Valve failure due to material incompatibility

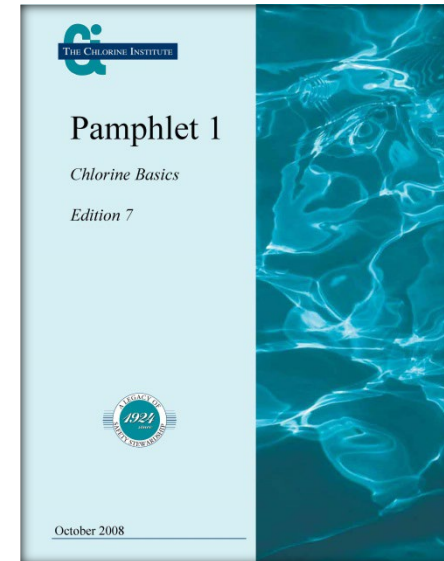
Cause(s)/Contributing Factor(s):
This particular valve had been in service for four years prior to failure. It was found that there was probably a mix-up in the labeling of valves after the valve was received (it was ordered with 20 other un-related valves).

Corrective Action(s):
The Positive Material Identification (PMI) process was re-vamped as a result.

Resources:

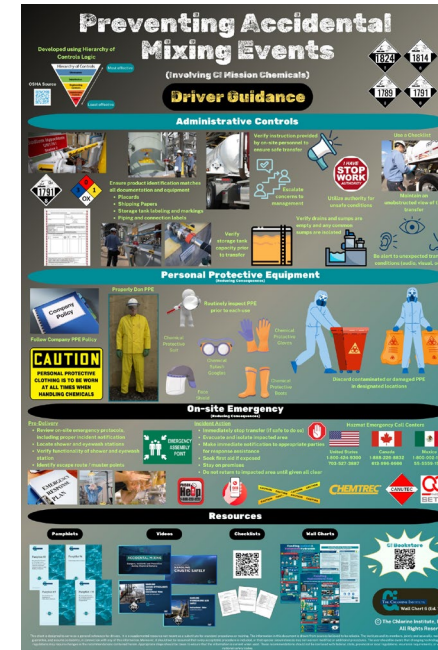
Pamphlets

- Pamphlets (48) are 10-100+ page guidance documents that detail chemical properties, safe handling, use, and transport
- Popular titles:
 - 1) Chlorine Basics
 - 5) Bulk Chlorine Storage
 - 6) Piping Systems for Dry Chlorine
 - 66) Recommended Practices for Handling Chlorine Tank Cars
 - 94) Caustic Storage Equip. & Piping Systems
 - 96) Sodium Hypochlorite Manual
 - 155) Water & WW Operators Cl₂ Handbook
 - 163) Hydrochloric Acid Storage and Piping Systems



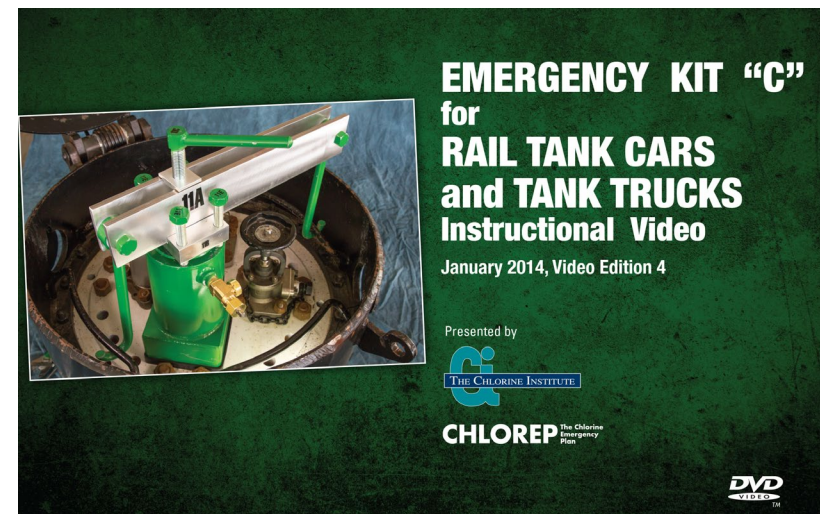
Resources: Wall Charts

- Visual aids produced by CI Task Group expertise
- Available for order in CI's Bookstore

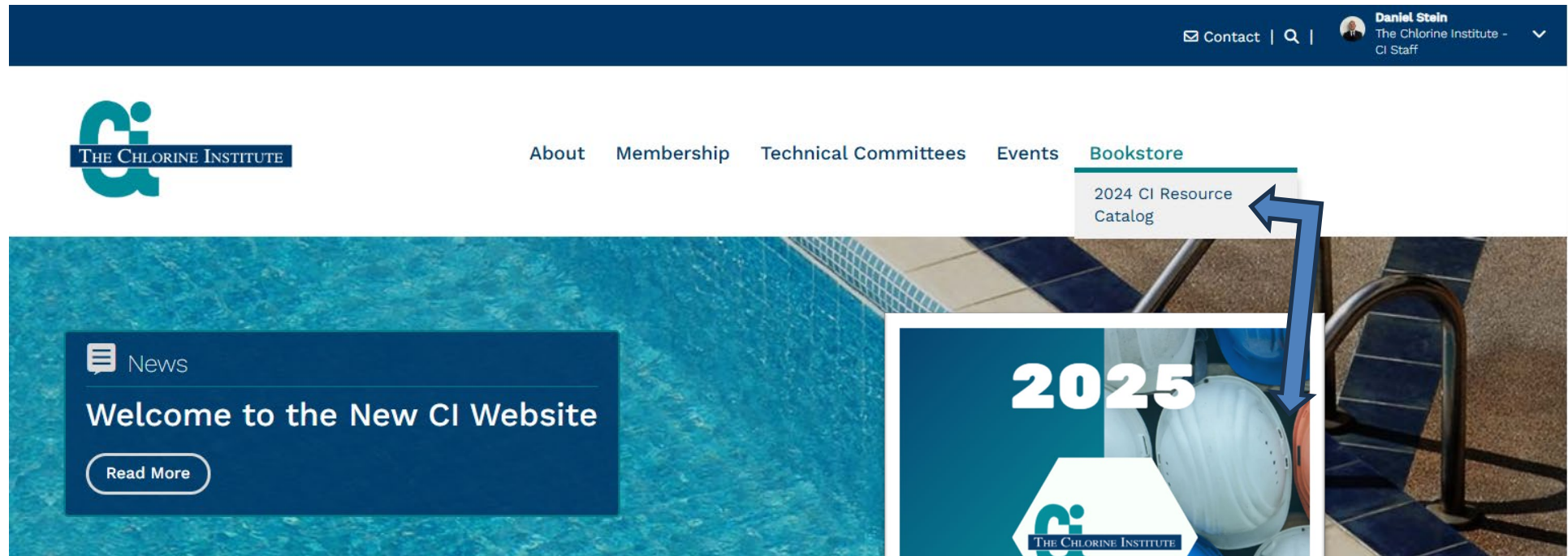


Resources: Videos

- Videos summarize pamphlet information AND recent transportation incident data
- Popular titles include:
 - Cl₂ Emergencies: Overview for First Responders
 - Emergency Kits (A, B, C)
 - Preventing Non-Accident Releases
 - Preventing Chlor-Alkali Releases during Cargo Tank Operations



Resource Catalog



Monthly Newsletters

CI Insider, FFU & TRN Update



February 2020

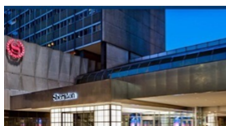
February Member Spotlight: Matt Bond (Westlake Chemical Company)

"Over the years, Matt has made tremendous contributions to help advance CI's mission. When CI requests volunteers for various projects, Matt can be counted on as a willing participant." - CI Staff

[Read More](#)



Register NOW for CI's 2020 Annual Meeting!



Monday, March 30 –
Thursday, April 2, 2020

Dallas, TX

[Read More](#)



IN THIS ISSUE

Featured Article:

[Updated Model for Calculating H₂ Tax Credits + IRS Rule on H₂ Credits](#)

THE CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD (CSB)	2
CHLORINE DERIVATIVE INCIDENT FIRE + CHLORINE GAS RELEASE (LAKE CHARLES, LA)	2
FIRST SET OF IN-DEPTH INCIDENTS RELEASED	2
DEPARTMENT OF ENERGY (DOE)	4
STUDY STATES CHLOR-ALKALI SECTOR HAS DECARBONIZATION CAPABILITY	4
UPDATED MODEL FOR CALCULATING H ₂ TAX CREDITS + IRS RULE ON H ₂ CREDITS	5
DEPARTMENT OF HOMELAND SECURITY (DHS)	5
2/11 WEBINAR – BEHAVIORAL THREAT ASSESSMENT UNITS: GUIDE TO PREVENT TARGETED VIOLENCE	5
GAO REPORT URGES DHS TO UPDATE GUIDANCE ON AI IN CRITICAL INFRASTRUCTURE	6
ENVIRONMENTAL PROTECTION AGENCY (EPA)	6
TSCA DRAFT RISK EVALUATION SCOPE FOR VINYL CHLORIDE + MOU BETWEEN OSHA & EPA	6
CIVIL PENALTY INFLATION ADJUSTMENT	7
BILINGUAL PESTICIDE LABELS	7
SAFE DRINKING WATER ACT CONTAMINANT PRELIMINARY REGULATORY DETERMINATIONS	7
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)	8
AIRBORNE CONTAMINANT DATA FROM INSPECTIONS AVAILABLE ONLINE	8
SPECIAL INTEREST SECTION	8
CDC'S MODAL AQUATIC HEALTH CODE EDITION 5 PUBLISHED	8
USGS REPORT PREDICTS INCREASE IN SALT DEMAND	9
PROCESS SAFETY BEACON	9
SEE SOMETHING, SAY SOMETHING	9
UPCOMING EVENTS, COMMENT OPPORTUNITIES, AND REGISTRATION LINKS	9
BEHAVIORAL THREAT ASSESSMENT UNITS: GUIDE TO PREVENT TARGETED VIOLENCE WEBINAR, 2/11	9
DRAFT RISK EVALUATION SCOPE FOR VINYL CHLORIDE, COMMENTS DUE 3/3	9
SDWA CONTAMINANT PRELIMINARY REGULATORY DETERMINATION, COMMENTS DUE 3/17	9
2025 CI ANNUAL MEETING, 3/17-20	9
COMMONLY USED ACRONYMS	10



Linked here is CI's [June 2024 Transportation](#). This issue includes updates on the following:

- Pamphlet 166 Open for 30-Day Member Review
- NTSB Final Report on East Palestine Derailment Investigation
- PHMSA Federal Register Notices
 - Notice for Comment on Proposed Investigation Questions
 - Final Rule on Real-Time Train Consist Information
- Railroads File Suit on Reciprocal Switching Decision
- FRA R&D Reports

(standard sections)

- CI Transportation Publication Activity
- Calendar – Transportation Related Meetings/Activities
- Commonly Used Acronyms

Past monthly transportation updates can be found [here](#) on the CI website. To receive updates directly from CI on OSHA, EPA, DHS and other facility-focused agency activities, simply sign up for the monthly Fixed Facility Update through your online CI website account. If you do not have an account on the CI website, send an email to info@ci2.com to request one.

Please let me know if you have any questions.

Thanks,

Robyn Kinsley



The Chlorine Institute

Aim For Zero

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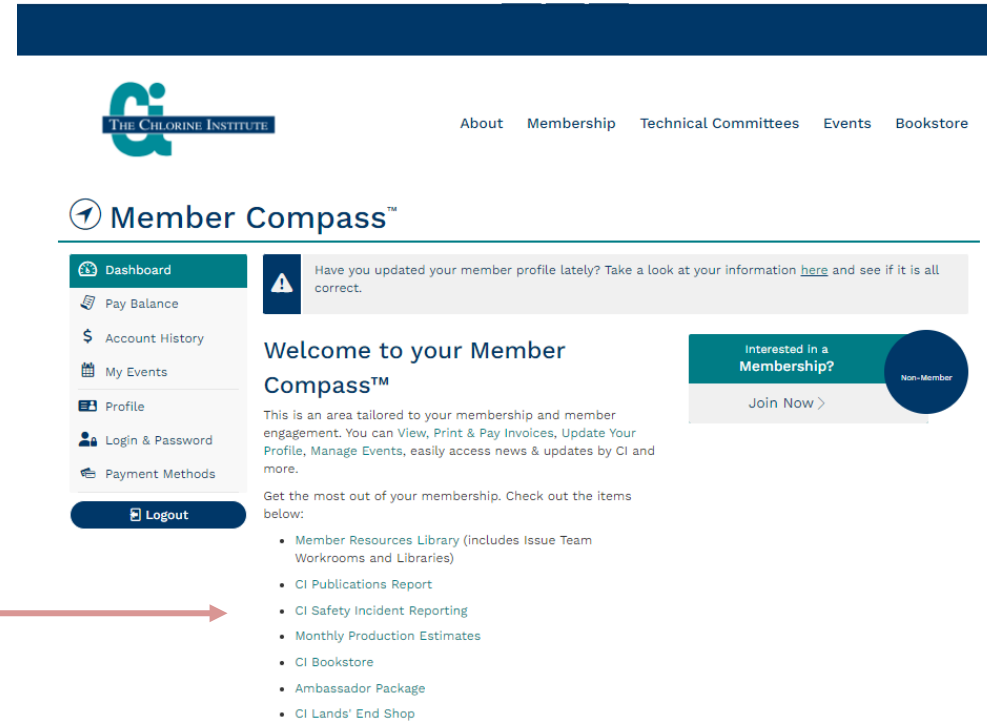
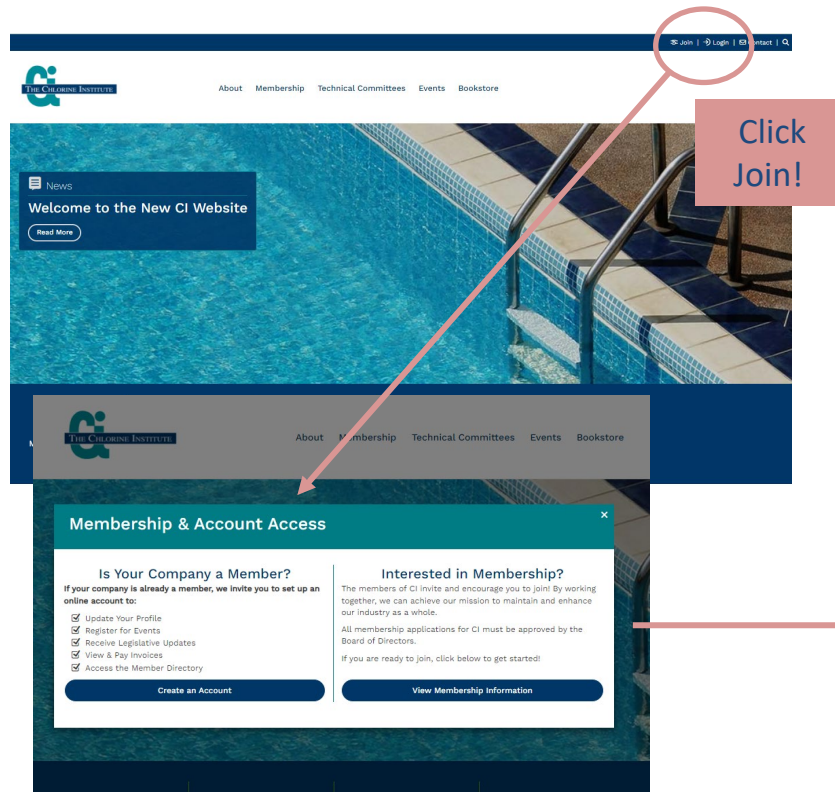
Resources for Everyone:

Tech Service Inbox

- Anyone can submit a question through the Tech Service Inbox
- CI staff will search our literature for an appropriate response
- If the inquiry is safety-related and NOT addressed in our literature, CI staff will contact CI members for further guidance
- Send questions to techsvc@CL2.com



Online CI Profile & Web Access



**Partial screenshots shown.*

Website Access to Members-
Only Information

Social Media & Contact Us



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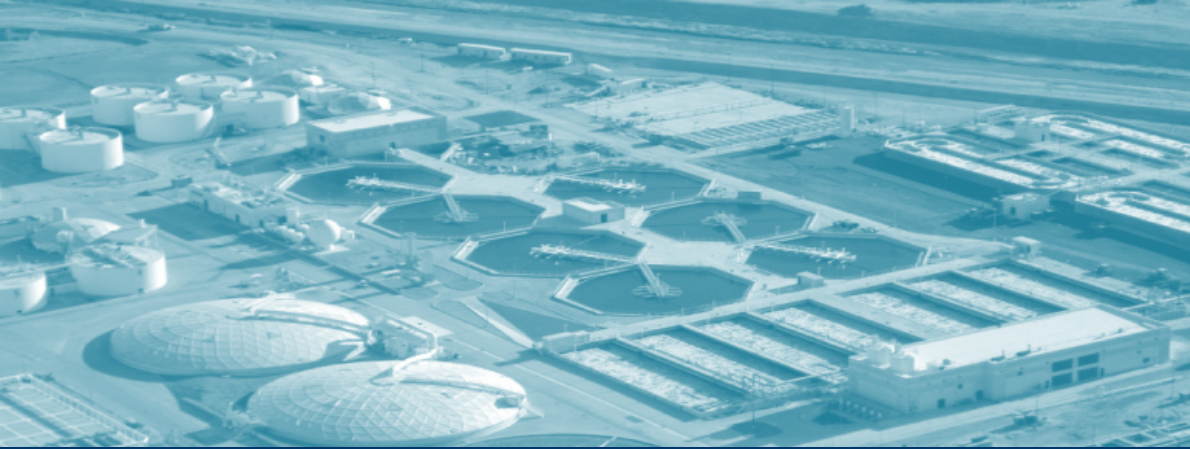
CI Main – (703) 894-4140; Info@CL2.com

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Thank You!



The Chlorine Institute Chlorine Emergency Preparedness



April 24, 2025

Agenda

- CI Overview
- CHLOREP Mutual Aid Program & Handbook
- CHLOREP Activation & Coverage Maps
- CHLOREP Training
- Contractor Verification Program
- Emergency Response Resources

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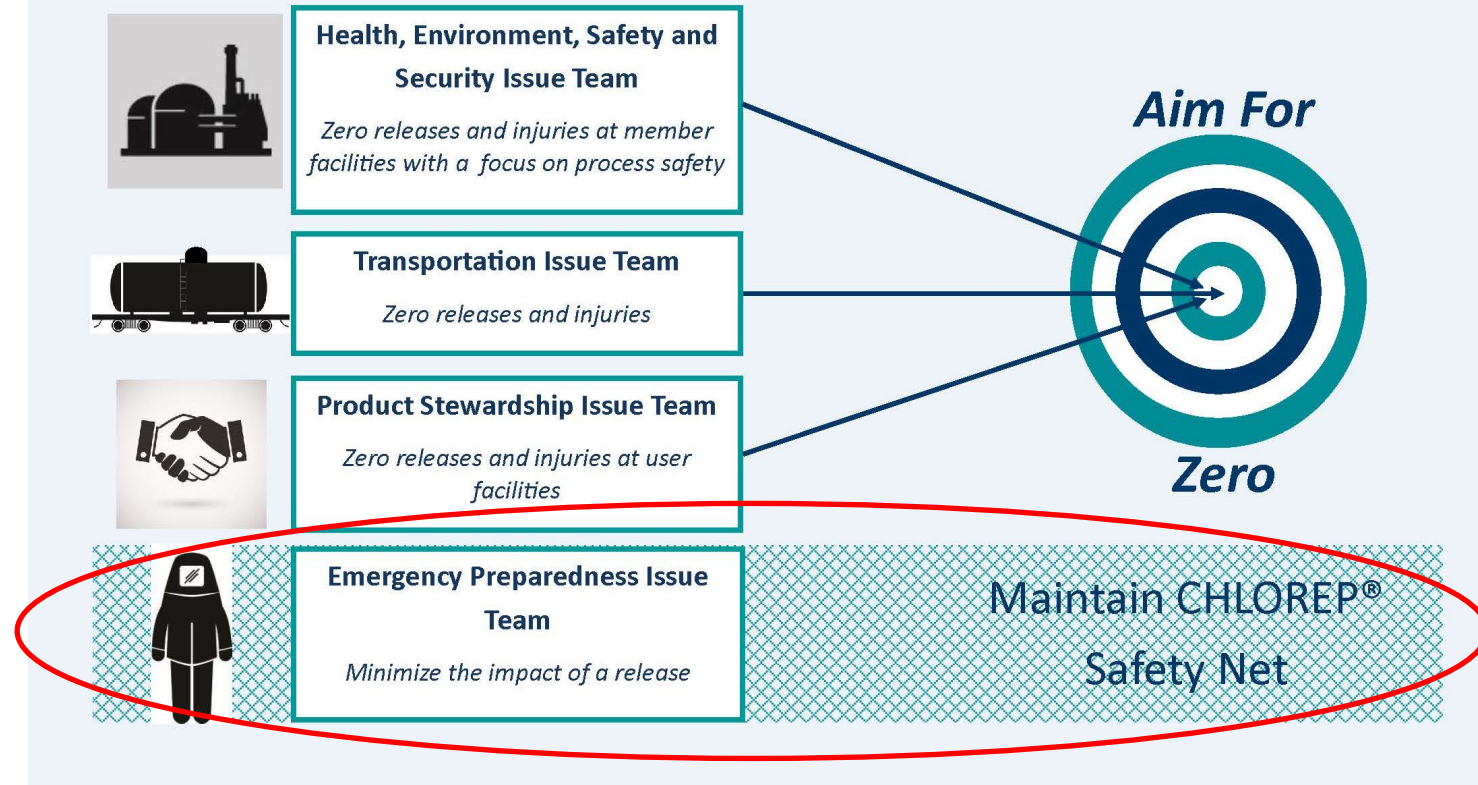
Mission Chemicals

Chlorine
Caustic Soda & Caustic Potash
Sodium Hypochlorite
Hydrochloric Acid
Anhydrous Hydrogen Chloride
Vinyl Chloride

How does CI Achieve its Mission?

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What is CHLOREP?

- The Chlorine Emergency Plan, established in 1972
- A 24/7 emergency response mutual aid network
- Supported by:
 - 88 response teams from 25 member companies that produce, package or use chlorine
 - 12 chlorine emergency response contractors that meet stringent industry performance requirements

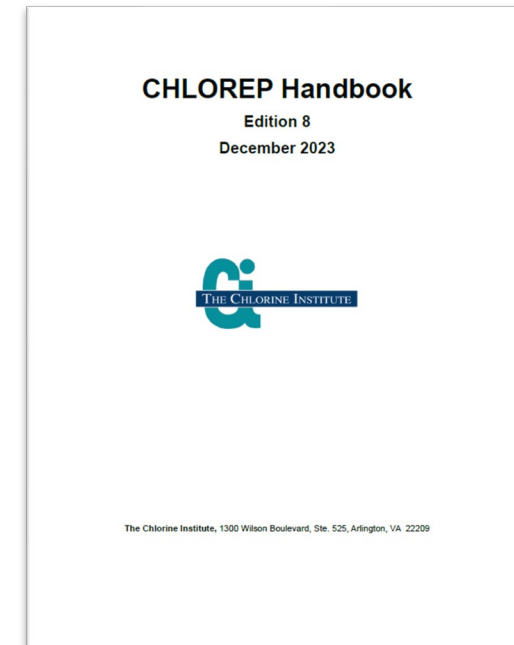
CHLOREP The Chlorine
Emergency
Plan

CHLOREP Mission & Scope

Mission:

- 1) Prepare and educate participants to assure effective emergency response preparedness, prevention, and mitigation of chlorine incidents
- 2) Ensure timely and professional response to all chlorine incidents

Scope: Chlorine emergencies in transportation and at smaller end-user facilities.



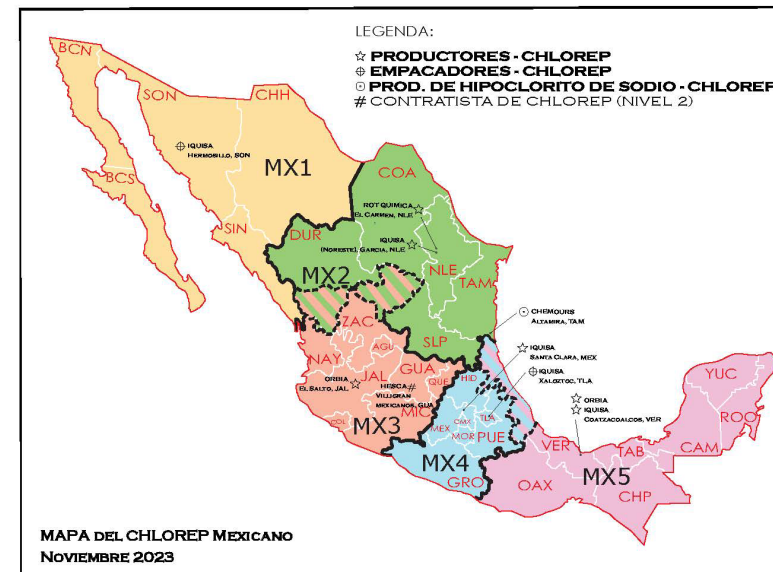
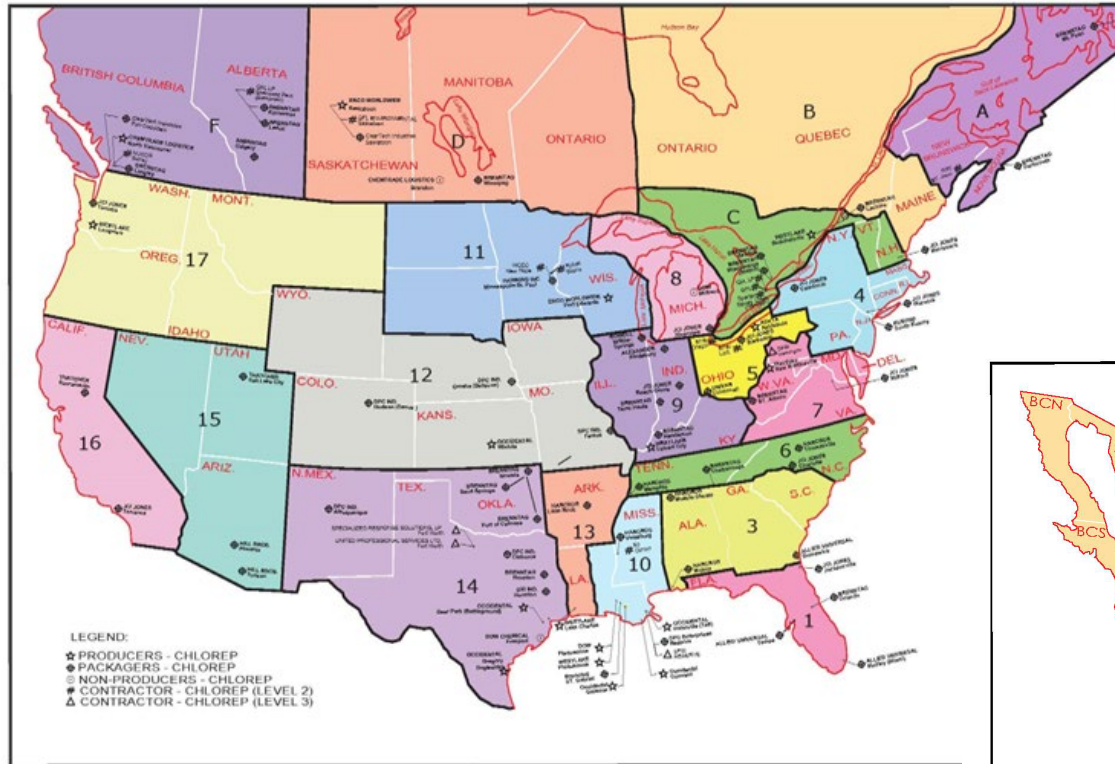
Chlorine in Transportation



How does CHLOREP Achieve its Mission?

- Provide complete CHLOREP coverage for the U.S., Canada, and Mexico
- Implement & maintain a strong Emergency Response Contractor Verification Program
 - *Supplement responses requiring more advanced capabilities or are located in remote areas*
- Provide annual training for CHLOREP Teams & Contractors
 - *Advanced training every three years for more experienced responders*
- Support preparedness needs of state & local responders for chlorine emergency response through hands-on training

How is CHLOREP Organized?



How is CHLOREP Organized?

- CHLOREP Sectors
 - U.S., Canada, & Mexico divided into 26 sectors
 - Majority of sector borders are state/provincial boundaries
 - CHLOREP Teams respond to emergencies within their sector, regardless if they are the shipper/package owner or not
- CHLOREP Teams
 - Primary Team
 - One response team in each sector that receives initial call for assistance
 - Typically a chlorine producing plant
 - Secondary Teams
 - Provide additional support for response within their sectors, as needed and when called upon
 - Depending on location and containers involved

How is CHLOREP Activated?

Primarily through 24/7 emergency call centers

In the U.S.

Call CHEMTREC
1-800-424-9300
703-527-3887



In Canada

Call CANUTEC
1-888-226-8832
613-996-6666

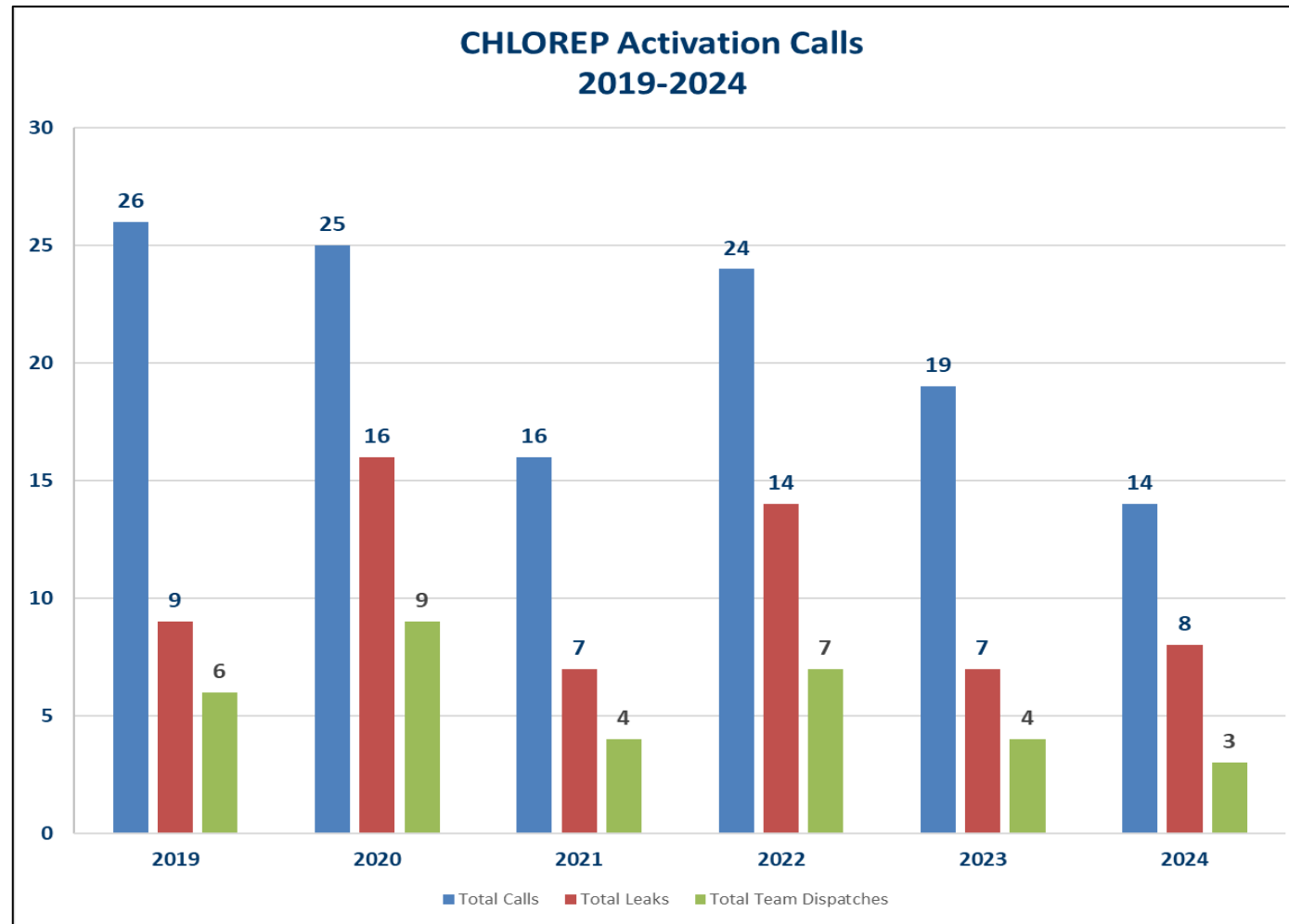


In Mexico

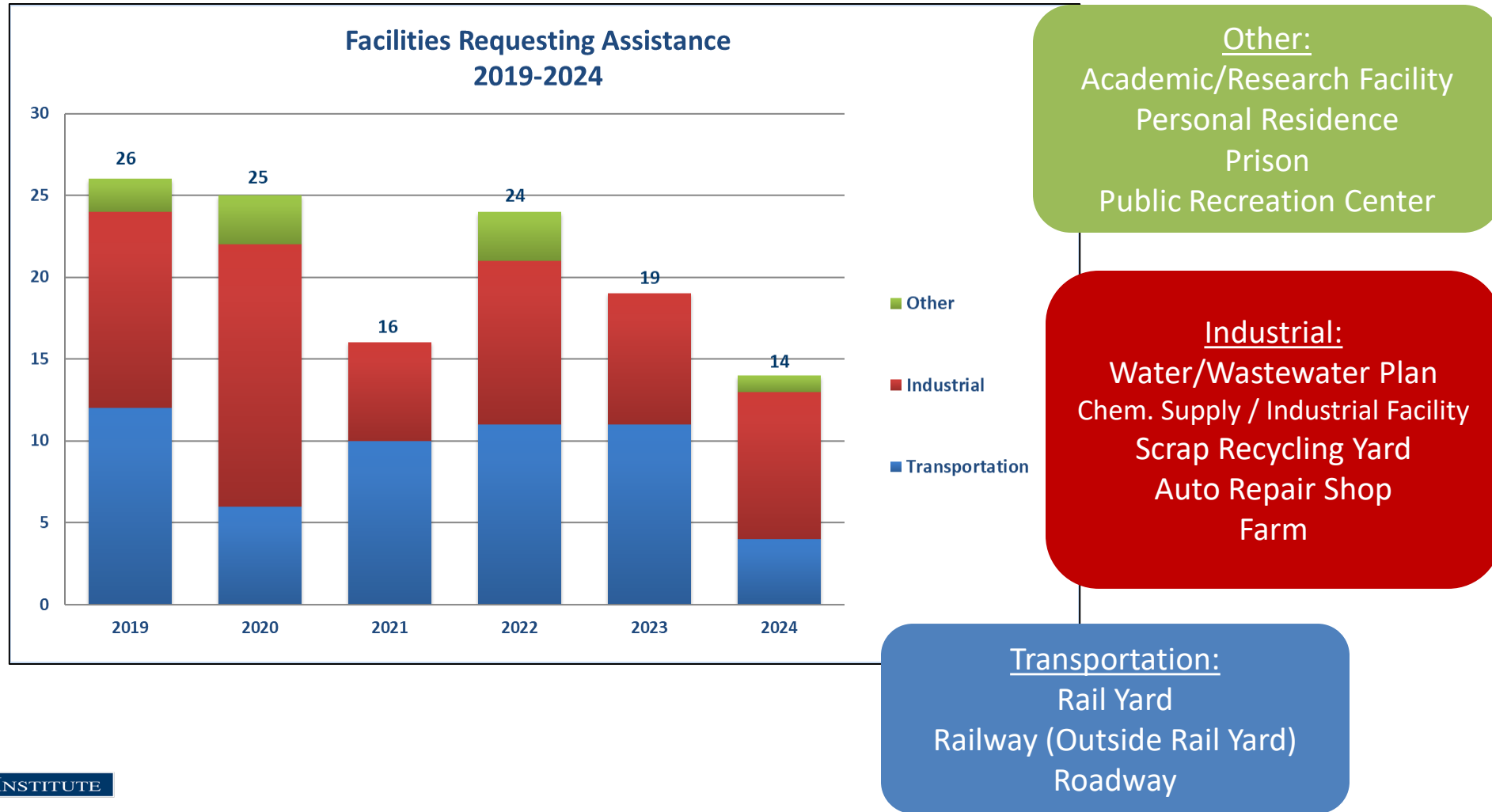
Call SETIQ
1-800-002-1400
55-5559-1588



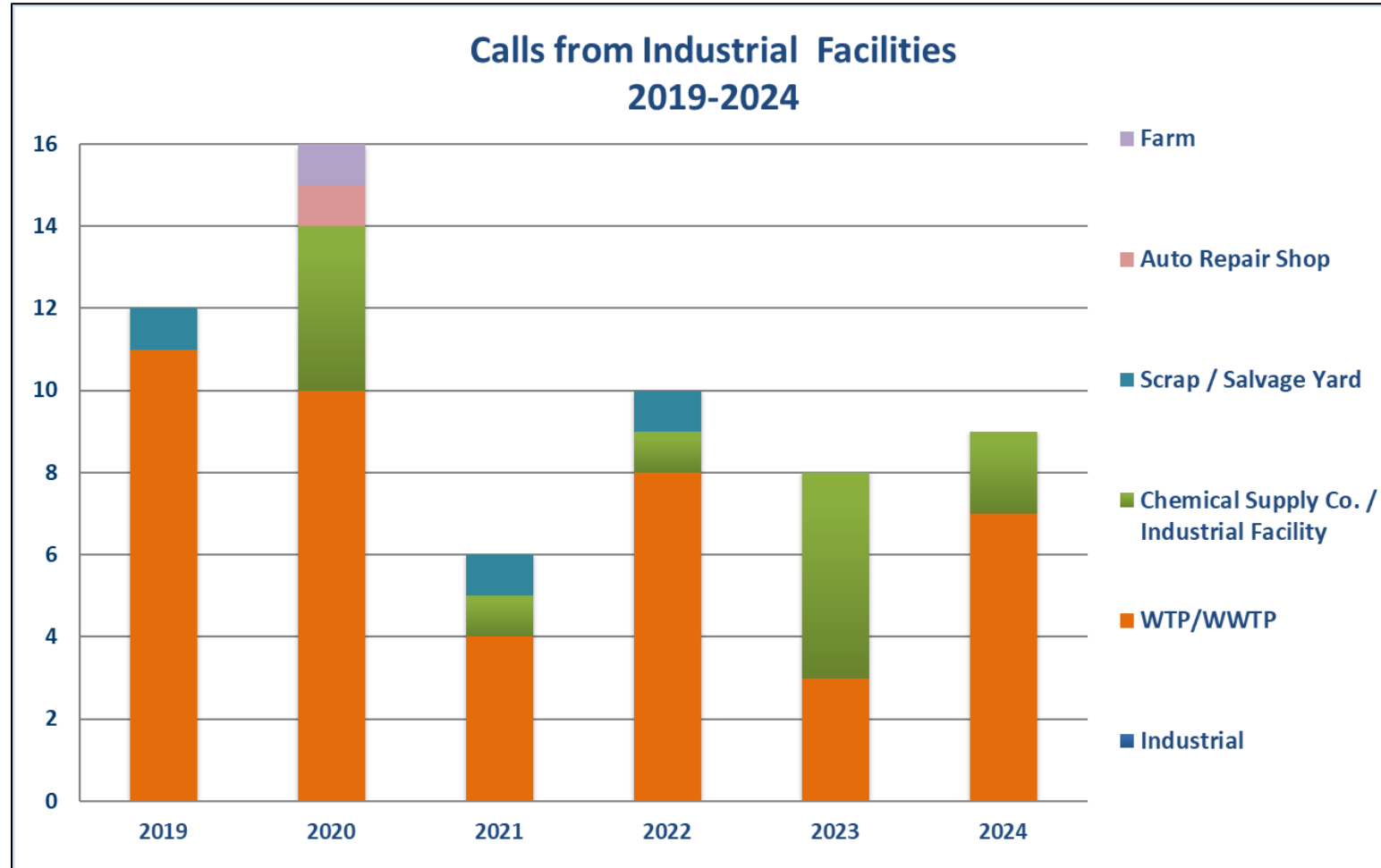
CHLOREP Activation Data



Facilities Requesting Assistance

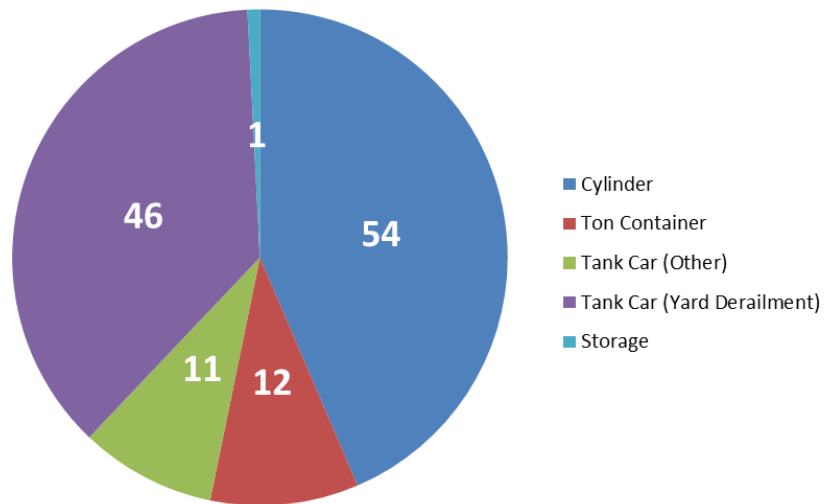


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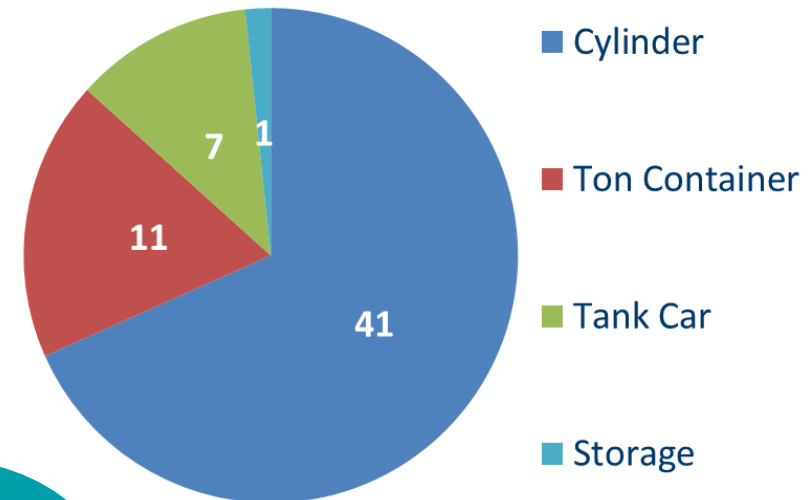


Calls by Container Type

CHLOREP Calls by Container (2019-2024)



Source of Leak by Container (2019-2024)



61 out of 124 (49%)
calls reported a leak

Leak Mitigation

Leak Mitigation Measure	Who mitigated? (number of incidents)	CHLOREP Team Retrieval?
CYLINDERS		
Cylinder Valve Closed (x3)	Hazmat Team (x2), Local FD (x1)	No
Cylinder Valve Closed	CHLOREP Team	No
Cylinder Valve Closed	Facility Personnel	No
Applied Fusible Plug Kit	Hazmat Team	No
Unknown	Local FD	No
TON CONTAINERS		
Unknown	Facility Personnel	No

Note: 2024 data only.

Annual CHLOREP Team Training

- Members-only*
- 2025 Training Event
(April 28 – May 2)
- Incorporating CI's retired training tank car into field exercises
- Training registration is Full!

*Minor exceptions



CHLOREP Contractors

- CI established verification process for emergency response contractors experienced in chlorine response
- Ensures availability of adequate response capabilities by alternative methods outside the traditional CHLOREP network, particularly for remote or complex incidents
- Must be a CI member and meet certain obligations
- Verified to Level 2 or Level 3
 - Level 2 – site visit every two years
 - Level 3 – site visit every four years
- U.S., Canada, and Mexico

CHLOREP Contractors

Primary response capability differences:

Level 2	<ul style="list-style-type: none">• Small container leaks (cylinders & ton containers)• Minor release from tank car valve or PRD• Mitigate with A, B, or C-Kit
Level 3	<ul style="list-style-type: none">• Level 2 capabilities, plus:• Special handling & field transfer capabilities for severely or potentially damaged bulk containers (cargo tanks & tank cars), which have potential for high impact consequence to public/environment

Chlorine Emergency Kits

A-Kit



B-Kit



Salvage Cylinder

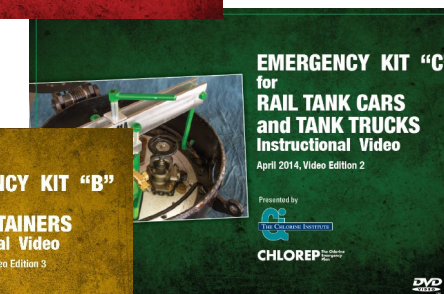
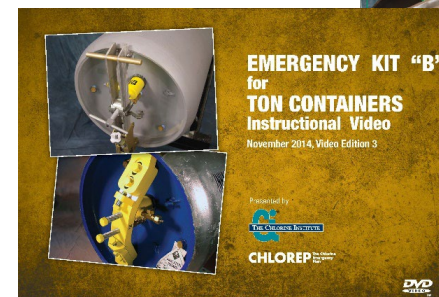
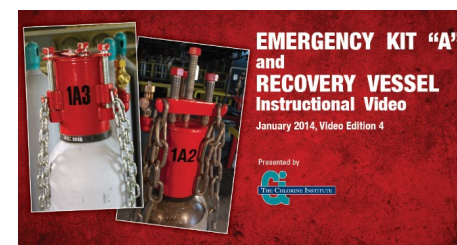
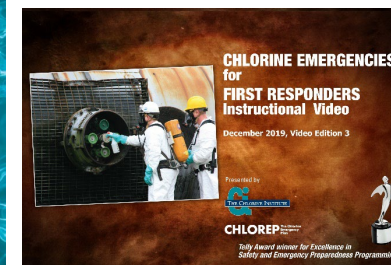
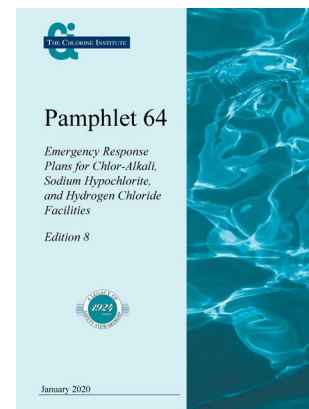


C-Kit



CI Emergency Response Resources

- Available via CI Bookstore
 - Pamphlet 64) *Emergency Response Plans for Chlor-Alkali, Sodium Hypochlorite and Hydrogen Chloride Facilities*
 - Pamphlet 74) *Guidance on Estimating the Area Affected by a Chlorine Release* (based on Jack Rabbit test data)
 - FR-VIDEO) *Chlorine Emergencies: An Overview for First Responders*
 - JRCL2) *Jack Rabbit: Chlorine Properties*
 - Chlorine emergency capping kit instruction booklets & videos



Social Media & Contact Us

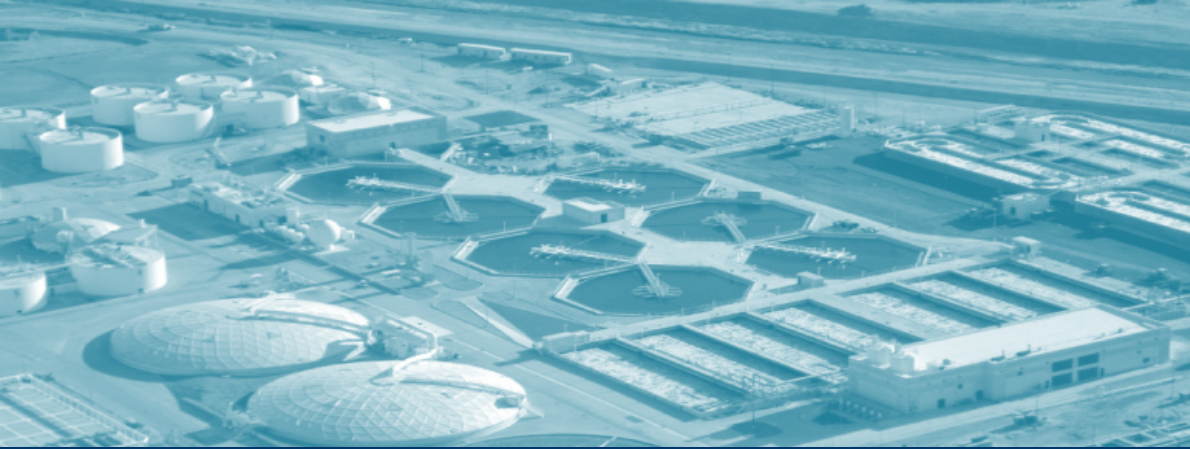


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