The Chlorine Institute
1300 Wilson Blvd., Suite 525, Arlington, VA 22209
Tel: 703-894-4140
www.chlorineinstitute.org

CHLOREP Bulletin

Issue Date: November 16, 2022

Subject: CHLOREP Team Guidance for Responding to Orphaned Chlorine Containers

Background: Due to an increasing number of CHLOREP activation calls during 2012-2014 involving orphaned chlorine containers[1] being discovered at scrap recycling yards. The Chlorine Institute (CI) worked with the Institute of Scrap Recycling Industries (ISRI) to develop guidance for identifying and handling chlorine containers in scrap yards. The final guidance was published in 2016.[2] After the guidance was published, it seems to have resulted in a lower number of CHLOREP activation calls involving these types of containers. However, the number of calls began to increase again during 2018-2020. Figures 1 and 2 provide data about these calls over the last decade. Figure 1 shows the number of calls per year, the total number of containers involved in those calls each year, and how total containers experienced chlorine leaks each year. Figure 2 provides a cumulative total of the types of facilities that made the calls over the 11-year period. The vast majority of these calls involved 150-lb. chlorine cylinders, with one call in 2016 involving a one-ton chlorine container.

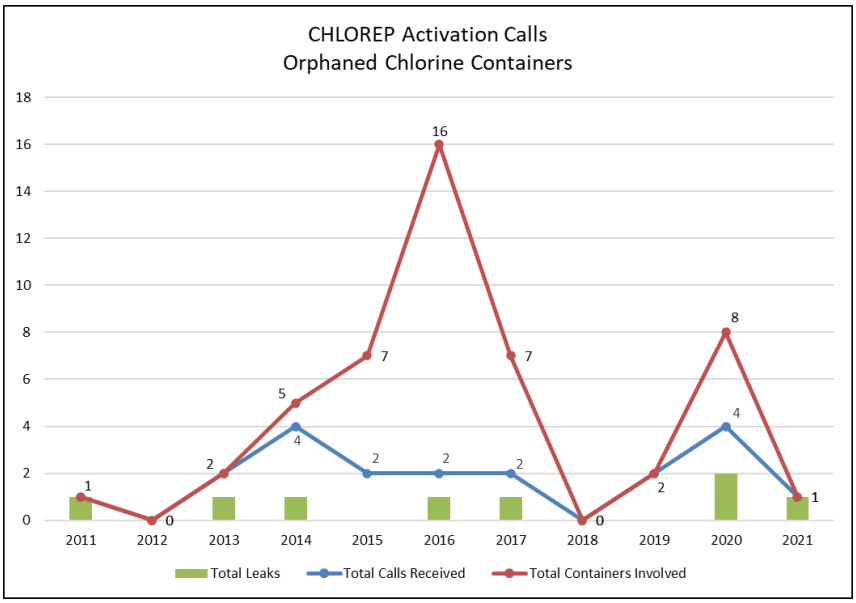

Figure 1

[1] An orphaned chlorine container is typically a very old 150-lb. chlorine cylinder or one-ton container that has been discovered at a site, typically an abandoned industrial site or dropped off at a scrap recycling yard. These containers are often in a diminished condition with degraded markings and are sometimes leaking.
[2] Guidance for scrap recycling yards can be found on CI's website at https://www.chlorineinstitute.org/stewardship/resources/

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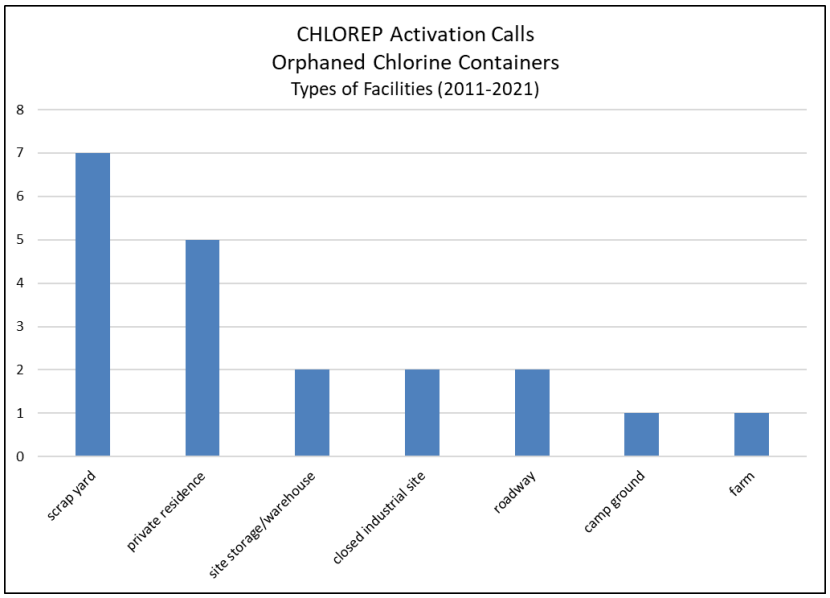

Figure 2

EPIT Goal: Due to the second wave of increasing calls involving orphaned chlorine container, CI's Emergency Preparedness Issue Team (EPIT) established a goal to not only update the existing guidance for scrap recyclers, but also develop new guidance for CHLOREP Teams, as well as first responders. Attached you will find guidance CHLOREP Teams may use when they receive a call to handle orphaned chlorine containers. This guidance will eventually be incorporated into the CHLOREP Handbook.

Contact: Please feel free to contact Robyn Kinsley, CI's Vice President of Transportation & Emergency Preparedness, (rkinsley@CL2.com or 703-894-4123) should you have any questions.

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CHLOREP TEAM GUIDANCE

RESPONDING TO ORPHANED CHLORINE CONTAINERS

CHLOREP Team Responsibilities & Expectations

All CHLOREP activation calls are typically initiated through CHEMTREC. Occasionally, a call will come into CI staff when it involves a non-leaking container and staff will contact the appropriate CHLOREP Team to assist. If a CHLOREP Team receives a call from CHEMTREC or CI staff involving an orphaned chlorine cylinder or ton container, leaking or not, they should handle it like any other chlorine emergency call. It is critical for a CHLOREP Team to ensure that the person(s) who may answer the initial call from CHEMTREC is properly trained on CHLOREP activation, including the various types of calls that may come in, how to respond to the CHEMTREC dispatcher, and immediately forwarding the information to the appropriate CHLOREP contact at their site.

Initial Call to Emergency

It is critical that the CHLOREP Team Leader (or designated person) immediately calls the on-site contact (and identifies him/herself) to ensure the container has been properly identified and is being handled safely. If a non-leaking container is not safely handled, it could quickly turn into a much-worse scenario with leaking chlorine. The following are considerations when the CHLOREP Team calls the on-site contact:

- Verify the container is one that does or did contain chlorine, by using any of the following:
  - Type of container is a 150-lb cylinder or one-ton container
  - Type of valve(s) installed
  - "CHLORINE" or "UN 1017" marking is identifiable on the container
- Verify the condition of the container, including whether it is leaking
- Identify the owner or distributor/supplier of the container from the markings (if legible), typically around the neck ring, as a stencil on the side of the container, or tag attached
- Advise the personnel on-site to not open the valve(s) and only move the container if it is an imminent threat to people and can be moved safely
- Insist the on-site contact sends pictures of the container (especially if the container is not leaking) to assist in ascertaining needed identification markings, the condition of the container and needed response.

Actions to Consider

Based on the information provided, the CHLOREP Team should consider the below actions. See the appendix for examples of calls involving orphaned chlorine containers and how they were handled.

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If the chlorine container is leaking:

- Mitigate the leak:
    - The CHLOREP Team should immediately dispatch to the site to mitigate the leak. If the CHLOREP Team feels on-site personnel are capable of mitigating the leak themselves, the Team Leader can simply provide assistance over the phone, as needed.
    - Similar to other typical activation calls, the Primary CHLOREP Team may consider calling upon a closer Secondary CHLOREP Team (or even a CHLOREP Contractor) to provide on-site assistance. If a Secondary CHLOREP Team or CHLOREP Contractor is dispatched for the event, that party will resume responsibility for the remainder of the response.
    - Use typical troubleshooting and mitigation methods as would be used for any chlorine container leak (e.g., emergency capping kit, recovery vessel, etc.).



    - If the condition of the valve(s) or container is deteriorated enough, the chlorine emergency kits may not be a viable option. Field transfer or field scrubbing may be necessary.


    - The CHLOREP Team should ensure they collect all of the necessary details during the initial call to determine the equipment that will be required on-site.

- Disposal of the container:
    - Once the leak is mitigated, call the container owner or distributor/supplier to pick up the container for disposal as soon as possible.
        - If a leak is no longer a threat and is located in a safe position, the CHLOREP Team may choose to leave the site and have on-site personnel await the owner's arrival.
        - Note that, because the container is typically very old, the owner or distributor/supplier may no longer be in business or was acquired by another company that is currently in business. Some level of research may be required in this case.
        - The CHLOREP Team can choose to handle disposal themselves or take the time to find the actual owner of the container. The choice is likely dependent on the amount of time it may take to identify and contact the actual owner. The CHLOREP Team is welcome to call CI staff for assistance with researching the container owner.
    - If the container owner cannot be identified, the responding CHLOREP Team should transport the container off-site themselves for disposal.
    - Follow transportation regulations for transporting the container and typical procedures for disposing of the chlorine and container once back at the CHLOREP Team's site.

<u>If the chlorine container is not leaking:</u>

- On-Site Assistance:
    - The Primary CHLOREP Team will determine if assistance is needed on-site based on the information provided to them.
    - If on-site assistance is required,
        - The CHLOREP Team should immediately dispatch to the site.
        - Similar to other typical activation calls, the Primary CHLOREP Team may consider calling upon a closer Secondary CHLOREP Team (or even a CHLOREP Contractor) to provide on-site assistance. In most cases, for non-leaking container, the closest Secondary Team is called to assist. If a Secondary CHLOREP Team or CHLOREP Contractor is dispatched for the event, that party will resume responsibility for the remainder of the response.

- Disposal of the container:
    - If on-site assistance is not required, advise on-site personnel to contact the container owner or distributor/supplier (if it can be identified) to pick up for disposal as soon as practical.
    - Note that, because the container is typically very old, the owner or distributor/supplier may no longer be in business or was acquired by another company that is currently in business. Some level of research may be required in this case. The CHLOREP Team can choose to assist on-site personnel in researching the owner or dispatch to the site to handle disposal themselves. The choice is likely dependent on the amount of time it may take to identify and contact the actual owner. The CHLOREP Team is welcome to call CI staff for assistance with researching the container owner.
    - If the owner or distributor/supplier cannot be identified, the CHLOREP Team should dispatch to the site to pick up the container for disposal.
    - Follow transportation regulations for transporting the container and typical procedures for disposing of the chlorine and container once back at the CHLOREP Team's site.

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APPENDIX

Example #1 - Farm

A chicken farm called CHEMTREC about an old cylinder it found leaking with a corroded valve. The farmer did a leak check with ammonia solution, which resulted in white vapors. He did not know where the cylinder came from and requested assistance.

The CHLOREP Team arrived at the site to assess the situation. It was suspected the cylinder was leaking ferric chloride. Due to the condition of the cylinder and the chlorinator that was attached, the Team was unable to secure the cylinder and remove it. Because the CHLOREP Team did not have the appropriate equipment, they left and went back to the site the next day for pick up and disposal of the cylinder.

Example #2 - Roadway

Ton container rolled off of a truck into a interstate ditch. Fire chief called it in and was using ERG guidance to determine any public protective actions. Container was not leaking, so there were no injuries or exposures. Hazmat team arrived on-site to perform any handling. CHLOREP Team contacted caller and no assistance by CHLOREP Team was needed. Hazmat team placed back onto truck to move on to its destination.

Example #3 – Campground

Seven non-leaking chlorine cylinders (with some residue) were abandoned in the woods at a boy scout camp. Chlorine was identified from the cylinder markings. The CHLOREP Team dispatched to the site to retrieve the cylinders for disposal. The cylinders were in good condition. Because the cylinders were dumped so far into the woods, they had to be retrieved one-by-one to a staging area where backhoe was then used to move them further to prepare for transport.

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Example #4 – Scrap Recycling Yard

Cylinder container chlorine residue was punctured at a scrap recycling yard. It was a windy, so the gas dissipated quickly. However, the event resulted in 10 exposures, five of which were transported to the hospital (one by air). All were treated and improved. The cylinder had limited markings and the owner could not be identified. The local fire department had used a pH strip and even though they indicated it smelled like chlorine/bleach they were still uncertain of the product inside the cylinder. The fire department eventually called CHEMTREC after the emergency ended. CHEMTREC proceeded with notifying the Primary CHLOREP Team. By the time the CHLOREP Team contacted the fire department, assistance was no longer needed.

Example #5 – Autobody Shop

An old, chlorine cylinder was found at an autobody shop and leaking through a small pinhole where the valve attaches to the cylinder. Shop personnel originally thought it contained nitrogen. A hazmat team responded and capped-off the valve. When the CHLOREP Team made contact, the hazmat team claimed the valve was intact. Once the CHLOREP team arrived on site for retrieval, it was discovered that much of the valve components were missing, including the stem, packing, and broken fusible plug (brought certain details of the initial response into question).