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### **CHLOREP: A Fire Chief's First Call and Right Hand during a Chlorine Emergency**

By Frank Reiner  
The Chlorine Institute, Inc.

The emergency call comes in. A freight train has derailed in your coverage zone and several tank cars are lying on their sides within a quarter mile of homes and a school. One of the cars is marked as carrying chlorine, and a faint smell of this vital, but toxic chemical has been reported.

Despite your 25 years of fire service, you've never had to deal with an accidental chlorine release before and are not an expert on hazardous materials. How do you deal with a possible release of this chemical? As you gear up to head for the scene, you recall reading an article in FIRE CHIEF about a program managed by the chlorine industry that can assist and a phone number to summon that help. You remember stuffing the critical information into the pocket of your turnout gear.

You pull it out and place a call to 1-800-424-9300. A courteous voice answers, and within a very few minutes puts you in touch with someone who knows a lot about the subject at hand. You describe the situation and pose questions; you hear sensible answers that build your confidence. Your discussion has concluded that you will need on-site assistance to deal with the situation. As you approach the scene of the derailment, the voice at the other end of the line tells you that a chlorine emergency response team is on the way.

The number you dialed reached CHEMTREC® (Chemical Transportation Emergency Center), which is an initiative of the American Chemistry Council (ACC). The person with whom you spoke immediately activated the CHLOREP (Chlorine Emergency Plan) program, a mutual-aid system prepared and ready 24/7 to provide an organized and effective response in case of an emergency involving chlorine anywhere in the United States or Canada.

Had the emergency occurred in Canada, you would have called collect to CANUTEC (Canadian Transport Emergency Centre) at 1-613-996-6666. You would have received the same courteous, efficient service.

CHLOREP is administered and coordinated by The Chlorine Institute, Inc. (CI), headquartered in Arlington, Va. Founded in 1924, CI is a not-for-profit trade association of some 220 companies that are involved in the safe production, distribution and use of chlorine, sodium and potassium hydroxides and sodium hypochlorite, and the distribution and use of hydrogen chloride.

Because of chlorine's nature and its widespread and varied use, the promotion of its safe handling long has been an accepted responsibility of its producers, packagers, distributors and users. The Institute is the focal point for their combined efforts, including the CHLOREP program, which was formalized in 1972 as a follow-up to an informal system in place since the 1930s.

#### How is the CHLOREP Program Set Up?

For efficient response in the event of a chlorine emergency, CI has divided the United States and Canada into regional sectors around chlorine emergency teams from plants that produce, package and consume chlorine. These sectors are arranged primarily along state or provincial boundaries, with each CHLOREP team assigned a sector in a state or states or provinces.

These CI member-company resources are supplemented by a network of contract responders who have specialized experience and equipment needed for response to chlorine emergencies. Team members from CI companies may be full-time emergency responders, but more frequently they are plant personnel with specialized training in chlorine response. Contractors' capabilities and experience are verified during visits by seasoned member-company representatives every two years.

CI provides recommended practices for CHLOREP teams to follow in preparation for and during responses to chlorine emergencies. Information flows from CI to update the teams on a regular basis. Every year, emergency responses are evaluated and lessons learned are shared with the teams. CHLOREP team members receive annual training consisting of a 36-hour session that includes both classroom instruction and extensive hands-on training, and field exercises. This program involves trainers from the railroad industry, as well as CHLOREP contractors and trainers from chlorine manufacturers and packagers.

CHLOREP program resources are available to serve as technical advisors in an emergency or to act as response teams. Following the concept of mutual aid, each response team treats and incident to which it responds as its own until it is handed off to the company (chlorine producer or packager) that is shipping the container involved in the incident.

Each participating company sponsors one or more CHLOREP groups, with each composed of an emergency contact to whom the request for assistance is directed; a CHLOREP team consisting of a team leader and several assistants to handle the emergency, and a home coordinator to provide support at the home location.

When a CHLOREP team is dispatched to an incident, it will come from within the region and from the closest team resource (plant or contractor) or the team that can reach the scene the fastest.

Costs associated with CHLOREP team activation and response normally are borne by the responding team or the shipper. The program is funded by CI member companies.

#### What Type of Assistance does CHLOREP Provide?

The CHLOREP system is set up to initially provide technical assistance to the incident site. When a call comes into CHEMTREC, the CHLOREP team responsible for the sector will get the call even before the shipper is contacted. The CHLOREP team leader is given a site contact who he/she immediately will attempt to reach.

After a discussion with the site contact, the CHLOREP representative will evaluate whether a team is needed on-site or if telephone assistance will be adequate to remedy the situation. History shows that about one in five incidents require on-site assistance.

The CHLOREP program focuses on transportation emergencies involving chlorine containers (rail tank cars, tank truck, cylinders), but will provide assistance at end-use facilities (e.g., water, waste-water treatment plants) when appropriate and within team capabilities. Chlorine producers, packagers and large chlorine-consuming facilities have their own response capabilities.

#### How Long does it Take for a CHLOREP Team to Respond?

After a fire official contacts CHEMTREC, the first return phone call from CHLOREP comes within a matter of minutes. Any call to CHEMTREC involving chlorine triggers the CHLOREP program into action. When the fire official and CHLOREP team leader jointly determine that a CHLOREP team is needed on site, it is activated very quickly.

All CHLOREP teams or contract responders can usually reach even remote sites in the United States and Canada within hours, flying if necessary. But many CHLOREP sectors are large, so providing a definitive response time is difficult. CI does keep statistics on response times and uses them to evaluate responses, but these times vary widely due to the size of the CHLOREP sectors and locations of teams within those sectors.

### What Should a Fire Chief Expect from a CHLOREP Team at an Incident Scene?

The fire chief can expect a team to come to the site if he/she as the local contact and the CHLOREP team leader deem it to be necessary and useful. Once on site, the team can serve as a technical advisor or an entry team, depending on what the incident commander deems to be appropriate. The team will consist of chlorine experts who will have been well trained in mitigation techniques.

If a team is dispatched to the scene, it will arrive equipped with necessary protective gear to make entry into the potentially hazardous area and will have specialized tools to address the situation. Depending on the type of transport container involved, the team will be equipped with one or more of four types of emergency equipment.

“Emergency Kit A” is designed for use with the standard U.S. Department of Transportation (DOT) 3A480 and 3AA480 100- and 150-pound-capacity cylinders in chlorine service only. It contains devices and tools to contain leaks in and around the cylinder valve and in the side wall of the cylinders. In addition, the team may arrive with the CI “recovery vessel,” which also is designed for use with the 100- and 150-pound cylinders. It will completely contain a leaking cylinder.

“Emergency Kit B” is designed for use with the standard DOT 106A500X chlorine ton container and also can be used with the 110A500W container in chlorine service. It contains devices and tools to contain leaks in and around the valves and in the side of the containers.

“Emergency Kit C” is designed for use with the standard DOT 105J500W or DOT 105J600I chlorine tank car, DOT MC331 chlorine cargo tank, and DOT 51 portable tank in chlorine service. It contains devices and tools to contain leaks in and around the pressure relief device and angle valves.

CI neither manufactures nor sells emergency kits<sup>1</sup> or the recovery vessel, but these three “emergency kits” are the only ones for chlorine service that are made to CI design guidelines.

CI also has recently identified an effective means of tapping a leaking chlorine tank car or tank truck and evacuating liquid chlorine from it to speed an emergency response operation. This procedure is described in the “What’s New in Chlorine Emergency Response” section of this article.

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<sup>1</sup> Indian Springs Manufacturing Co., Baldwinsville, N.Y., [www.indiansprings.com](http://www.indiansprings.com), manufactures chlorine emergency kits to design guidelines of The Chlorine Institute, Inc.

### Will CHLOREP Teams Handle Other Products Besides Chlorine?

CHLOREP teams typically respond only to chlorine emergencies. When a call is placed to CHEMTREC<sup>2</sup>, the CHEMTREC emergency service specialist can provide assistance for other chemicals that may be involved in an accident.

CHLOREP teams do have training in chlorine-related chemicals (sodium and potassium hydroxides, sodium hypochlorite -- often called bleach -- and hydrogen chloride), but these are not included in the CHLOREP mutual aid agreement. However, CHLOREP contractors can respond to incidents involving these other CI mission chemicals.

### Are Other Training Resources Available for Fire Fighters?

CI has a video available to first responders free of charge. "Chlorine Emergencies: An Overview for First Responders" received a Telly Award<sup>3</sup> for safety program excellence. The material is organized in an easily navigable format that includes a main segment of about 20 minutes that covers the basics of response to a chlorine incident in the critical first 15 minutes. Ten tabs provide access to detailed segments including chlorine properties, mitigation and health effects.

Order a hard copy free by visiting [www.chlorineinstitute.org](http://www.chlorineinstitute.org) and clicking on the video cover on the left side of the homepage. You will be taken to a page from which you can place your order. From this same page you can download a self-assessment tool in PDF format (test and answer sheet) to quiz students on key points after they have viewed the video.

And of course, CI maintains a vast technical resource on chlorine, most of which is available free of charge via download from its online bookstore. Already, 26 of CI's 47 technical pamphlets have been made available free, and five more are being added each quarter of this year.

Among the free publications available for download is *Chlorine Basics* (Pamphlet 1), which provides an overview of information and resources available to safely handle, store, transport and use chlorine. Topics covered in other free publications of interest to fire fighters include emergency response, personal protective equipment, atmospheric monitoring, and practices for handling various types of chlorine containers.

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<sup>2</sup> CHEMTREC®, an emergency responder's first line of defense, is a 24/7/365 emergency call center that provides immediate information and assistance to anyone, anywhere involved in a hazardous material or dangerous goods incident. It has been a world leader in the hazmat response community since 1971.

<sup>3</sup> Presented annually, Telly Awards honor the best video and film productions, and local, regional and cable television commercials and programs.

In addition, CHLOREP teams frequently provide training on an as-available basis to local responders and at chlorine end-use locations. Contact CI at 703-741-5760 if you are interested in requesting such training from the nearest team in your sector.

CHEMTREC also has created a new training video, "CHEMTREC®: An Overview for Emergency Responders." To find out more about the CHEMTREC program and the video, visit [www.chemtrec.com](http://www.chemtrec.com) or email Donna Lepik, the ACC's director of outreach and special projects, [dlepik@chemtrec.com](mailto:dlepik@chemtrec.com).

### What's New in Chlorine Emergency Response

CI has a longstanding commitment to enhance the effectiveness of emergency responses to chlorine incidents. Following a Montana accident in 1996, CI identified a need to develop a way to transfer liquid chlorine safely at atmospheric pressure at the chemical's very low temperature (-30°F, -34.4°C). Based on equipment evaluations and tests, the industry has developed an effective means to hot-tap a breached chlorine tank car or tank truck, and has validated techniques for using the method to evacuate the vessel quickly.

CI owns the equipment package, which is housed and maintained by a contractor under an agreement with CI. The contractor is part of the CHLOREP network, and is qualified to operate it. The equipment also is available to all CHLOREP response contractors that are qualified to use it.

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### **ABOUT THE AUTHOR**

Frank Reiner is vice president of transportation and emergency preparedness for the Arlington, Va.-based Chlorine Institute, Inc. (CI). Founded in 1924, CI is a not-for-profit trade association of some 220 companies that are involved in the safe production, distribution and use of chlorine, sodium and potassium hydroxides and sodium hypochlorite, and the distribution and use of hydrogen chloride.