

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Carbide Industries Fire - Removal Polrep
Initial Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject: POLREP #1
Initial Polrep
Carbide Industries Fire
B4G3
Louisville, KY
Latitude: 38.2229174 Longitude: -85.8352375

To:
From: Art Smith, OSC
Date: 3/23/2011
Reporting Period: 03/21/11 through 03/23/11

1. Introduction

1.1 Background

Site Number:	(EPA SSID: B4G3)	Contract Number:	
D.O. Number:		Action Memo Date:	
Response Authority:	CERCLA	Response Type:	Emergency
Response Lead:	PRP	Incident Category:	Removal Action
NPL Status:	Non NPL	Operable Unit:	
Mobilization Date:	3/22/2011	Start Date:	3/22/2011
Demob Date:		Completion Date:	
CERCLIS ID:		RCRIS ID:	
ERNS No.:		State Notification:	
FPN#:		Reimbursable Account #:	

1.1.1 Incident Category - Active Production Facility

1.1.2 Site Description

1.1.2.1 Location

Carbide Industries, LLC is located at 4400 Bells Lane in Louisville, KY. The coordinates at the guard shack are N 38.2229174 W 85.8352375. The facility produces calcium carbide by electrically heating lime and coke at high temperatures. Calcium carbide is used in the acetylene manufacturing process.

Carbide Industries is located in the "Rubbertown" community of Louisville, which is home to multiple chemical manufacturing plants. The closest residential neighborhoods are located to the east of the facility within a half-mile distance.

The Ohio River is located approximately one-half mile west of the facility along Bells Lane.

1.1.2.2 Description of Threat

Calcium carbide is a water reactive solid material which evolves acetylene gas and calcium hydroxide (lime) upon contact with water. Acetylene is an asphyxiant and is flammable at 2.5% in air. Calcium hydroxide is caustic and generates a high pH runoff. The threats posed by the release of calcium carbide into the environment are a potential fire and explosion hazard associated with acetylene gas evolution and the runoff of stormwater from a high intensity short duration rain event.

Calcium carbide is a hazardous substance under both Section 102 of CERCLA and Section 311 (b) of the Clean Water Act.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

An explosion involving two fatalities occurred at Carbide Industries in Louisville, Kentucky on March 21, 2011 at approximately 1740 hours EDT. The building is approximately the height of a ten-story building, containing a 40 foot tall furnace that was the source of the explosion. The force of the explosion released calcium carbide into the environment, which caused several grass fires to ignite on Carbide plant property, and which were subsequently extinguished by the fire department. It was determined that water could not be applied to the fire because calcium carbide contained within the building is water reactive, therefore the decision was made early on during the evening of 03/21 to let the fires inside the building burn itself out.

The building is composed of a non-insulated steel structure with steel, wood, and concrete flooring. The third floor contains four- 5,500 gallon electrical transformers which contain mineral oil. One or more of the

transformers caught fire late on 03/21, resulting in a conflagration which threatened the structural integrity of the furnace building.

As of 1800 hrs. on 03/23, conditions inside the furnace building remain unstable. Therefore, the full removal site evaluation process can not be completed until all fires are out at the facility. However, EPA does not consider the air release associated with the smoldering fires inside the furnace building to represent an immediate threat to the nearby community.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

On 03/22 at 0800 hrs. OSC Smith was dispatched by the EPA Region 4 Duty Officer to respond to the incident. OSC Smith ordered the Superfund Technical Assessment and Response Team (START) contractor Tetra Tech EMI, Inc. to provide support for the response. OSC Lam from EPA Region 5 also mobilized due to her proximity to the incident. All parties arrived onscene at about 1300 hrs. EDT on 03/22. While Region 5 subsequently demobilized late on 03/22, OSC Smith and 1 START member remain onsite at the completion of this reporting period.

From 03/21 through 03/22, air monitoring was conducted by the local fire department (Lake Dreamland Fire Department), Carbide Industries, Louisville Metro Health Department (LMHD), and Louisville Air Pollution Control District (APCD). Beginning on 03/23, Carbide's contractor representatives from the Center for Toxicology and Environmental Health (CTEH) assumed responsibility for continued air monitoring and sampling. Lake Dreamland FD conducted air monitoring onsite 03/21 beginning with the first response to the incident using Area Raes, multi-gas instruments, and Q Raes for lower explosive limit (LEL), oxygen, ammonia, chlorine, volatile organic compounds (VOCs), and individual monitors for carbon monoxide. Carbon monoxide readings were as high as 100 parts per million (ppm) within the immediate hot zone on the plant property. (Carbon monoxide was not monitored outside the hotzone). Metro Health began conducting air monitoring immediately after the explosion occurred using Area Raes for LEL, oxygen, ammonia, chlorine, and VOCs in a general two-mile perimeter of the incident site. No significant readings were documented during these monitoring events. APCD maintains fixed air monitoring stations in the area of the incident based upon the heavy industrial activity in the area. Air monitoring results from these locations indicated a slight elevation in particulate matter 2.5, but no significant readings were observed. Carbide Industries indicated that one of their personal carbon monoxide monitors produced a peak range reading of approximately 35 - 40 ppm.

At 1600 hrs. on 03/22, the smoke plume from the furnace building had diminished considerably. Lake Dreamland FD conducted an entry into the hot zone and determined that the combustion source was in one or more of the transformers on the 3rd level of the furnace building. Fire service personnel considered that the fire would extinguish itself on it's own within a reasonably short period of time and no action was taken, primarily due to the damage to the building caused by the explosion.

During the AM hours of 03/23, additional efforts to recon the building were performed by the FD, mainly to assist fire investigators with their evidence collection activities. Other agencies with fact finding responsibilities have mobilized to the scene, including the Kentucky OSHA program and the US Chemical Safety Board.

CTEH established an Area Rae monitoring station inside the furnace building and reported elevated levels of acetylene at that location, as evidenced by readings up to 3.5% of the LEL on the Area Rae. However, these levels quickly dissipate in the open air immediately outside of the building. EPA continues to monitor the air results provided by Carbide's contractor, and to oversee these activities daily.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

Carbide Industries, LLC is the responsible party. No enforcement actions have been taken by EPA at this time.

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

On 03/24, FD will configure tactical requirements and conduct a safety analysis in an attempt to mitigate the fires inside the furnace building.

2.2.1.2 Next Steps

If successful, the next steps would be to allow the facility to evaluate the damage inside the furnace building and develop plans for further assessment, demolition, and subsequent cleanup of the damage caused by the fire and explosion. Additionally, completion of the OSC's removal site evaluation and various investigations into the cause of the accident would be facilitated if the fires can be extinguished.

2.2.2 Issues

Unsafe conditions inside the building may adversely impact firefighting operations.

2.3 Logistics Section

All EPA and START resource requirements for this response are in place.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

2.5.1 Safety Officer

The EPA OSC and the Lake Draemland FD Safety Officer are coordinating on establishment of appropriate task-specific safety requirements for site response operations.

2.6 Liaison Officer

All participating and cooperating agencies have on-site representation on the incident management team.

2.7 Information Officer

2.7.1 Public Information Officer

Information Officer duties are shared among the Agency Incident Commanders and Carbide Industries. Media briefings to local print and electronic media outlets have been held on-scene at least twice a day during this reporting period.

3. Participating Entities

3.1 Unified Command

US EPA, Kentucky Department for Environmental Protection (KDEP), Lake Dreamland FD, and Carbide Industries, LLC.

3.2 Cooperating Agencies

KY OSHA, KY State Fire Marshal's Office, Chemical Safety Board, Louisville Metro Health and Air Pollution Control, Louisville Metro EMA, Louisville Metro FD and PD, multiple mutual aid organizations, notably the Jefferson County Fire Districts.

4. Personnel On Site

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START-1

KDEP, Lake Dreamland FD, Carbide Industries, KY OSHA, KY State Fire Marshal's Office, Chemical Safety Board, Louisville Metro Health and Air Pollution Control, Louisville Metro EMA, Louisville Metro FD and PD, multiple mutual aid organizations, notably the Jefferson County Fire Districts.

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.