Message

Sent: 9/1/2017 12:35:58 PM
To: Edlund, Carl [edlund.carl@epa.gov]
CC: Carroll, Craig [Carroll.Craig@epa.gov]; Crossland, Ronnie [Crossland.Ronnie@epa.gov]; Webster, Susan [webster.susan@epa.gov]; Foster, Althea [foster.althea@epa.gov]; Smith, Monica [smith.monica@epa.gov]
Subject: RE: Update No. 4 - Potential Air Release, Explosion, Fire/R12/Arkema Crosby Plant - Notification of Significant Incident

Roberto said they are different depending on the different types of peroxides but Arkema was recently able to determine what's in where and I will email you a table shortly

---

From: Edlund, Carl
Sent: Friday, September 01, 2017 7:11 AM
To: Smalley, Bryant <smalley.bryant@epa.gov>
Cc: Carroll, Craig <Carroll.Craig@epa.gov>; Crossland, Ronnie <Crossland.Ronnie@epa.gov>; Webster, Susan <webster.susan@epa.gov>; Foster, Althea <Foster.Althea@epa.gov>; Smith, Monica <smith.monica@epa.gov>
Subject: Re: Update No. 4 - Potential Air Release, Explosion, Fire/R12/Arkema Crosby Plant - Notification of Significant Incident

So. What is the temperature where self ignition can occur?

Did Roberto have a written report?

Sent from my iPad

On Sep 1, 2017, at 7:08 AM, Smalley, Bryant <smalley.bryant@epa.gov> wrote:

> Roberto's update from this morning: It appears that the temperature in the trailers stabilized overnight due to cool night conditions and because the material was initially at -20 F to -30 F, aiding in the cooling of the trailer itself. Expecting to rise again once ambient temps increase today (around 90 deg)
>
> Bryant
>
> ---
>
> **From:** Edlund, Carl
> **Sent:** Friday, September 01, 2017 7:04 AM
> **To:** Carroll, Craig <Carroll.Craig@epa.gov>; Crossland, Ronnie <Crossland.Ronnie@epa.gov>; Smalley, Bryant <smalley.bryant@epa.gov>; Webster, Susan <webster.susan@epa.gov>; Foster, Althea <Foster.Althea@epa.gov>; Smith, Monica <smith.monica@epa.gov>
> **Subject:** Fwd: Update No. 4 - Potential Air Release, Explosion, Fire/R12/Arkema Crosby Plant - Notification of Significant Incident
>
> Did we already have this info ? Do we have a report from Roberto? Do we have a draft morning report?
>
> Sent from my iPad
>
> Begin forwarded message:

From: "Coleman, Sam" <Coleman.Sam@epa.gov>
Date: September 1, 2017 at 6:57:57 AM CDT
To: "Gray, David" <gray.david@epa.gov>, "Crossland, Ronnie" <Crossland.Ronnie@epa.gov>, "Edlund, Carl" <Edlund.Carl@epa.gov>
Cc: "Wagner, Kenneth" <wagner.kenneth@epa.gov>
Subject: Fwd: Update No. 4 - Potential Air Release, Explosion, Fire/R12/Arkema Crosby Plant - Notification of Significant Incident

Samuel Coleman, P. E.,
Deputy Regional Administrator

214.665.2100 Ofc
214.665. 3110 Desk
214.665.2016 Cell

Coleman.sam@epa.gov

Sent from my iPhone

Begin forwarded message:

> **From:** Richard Hyde <richard.hyde@tceq.texas.gov>
> **Date:** September 1, 2017 at 6:00:42 AM CDT
> **To:** Sam Coleman <Coleman.Sam@epa.gov>
> **Subject: Fwd: Update No. 4 - Potential Air Release, Explosion, Fire/R12/Arkema Crosby Plant - Notification of Significant Incident**
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> > **From:** Guadalupe Quiroz <guadalupe.quiroz@tceq.texas.gov>
> > **Date:** August 31, 2017 at 11:08:32 PM CDT
> > **To:** HSNotify <HSNotify@tceq.texas.gov>
> > **Subject: Update No. 4 - Potential Air Release, Explosion, Fire/R12/Arkema Crosby Plant - Notification of Significant Incident**
> >
> > Update No. 4
> >
> > At 9:46 p.m. this evening, the R12 ERC at the Harvey/Arkema command post reported the following information. The Crosby Assistant Fire Chief, Rodney Reed, verified that both he and the county

deputies manning the road blockades heard popping noises similar to those heard last night. The Arkema representative at the command post, Richard Rennard has estimated, based on the popping heard and the telemetry temperature information (1 trailer > 10 degrees Fahrenheit above the self-accelerating decomposition temperature [SADT] and rising; 2 others near SDAT and climbing), that around 3:00 a.m. the decomposition reaction will begin as it did in the early hours of 8/31/17. The R12 ERC also noted hearing the popping sounds at the command location.

From: Todd Thompson
Sent: Thursday, August 31, 2017 5:56 PM
To: HSNotify <HSNotify@tceq.texas.gov>
Subject: Update No. 3 - Potential Air Release, Explosion, Fire/R12/Arkema Crosby Plant - Notification of Significant Incident

Update No. 3

At approximately 3:29 a.m. and 3:19 a.m., Arkema reported an explosion and a fire (ChemTel # 20172775 and NRC #1188881, both attached) at the Arkema Crosby Plant. An R12 ERC on call made positive contact with an Arkema representative who verified that the contents of one trailer reacted and caught fire at approximately 2:00 a.m.

Eleven (11) peace officers patrolling the area were routed to a local hospital as a precaution after driving through smoke from the fire. One (1) was transported and the remaining ten (10) self-transported. Based on current information, they are being released after being checked by medical personnel and cleared for release.

Shortly after the fire began, Harris County Pollution Control (HCPC) began conducting air monitoring around accessible areas near the perimeter of the 1.5 mile evacuation zone around the plant. Readings were non-detect. Arkema hired contractors to conduct air monitoring; one team has already begun and a second team will be deployed. Readings are reported to be non-detect. HCPC and

TCEQ are reviewing the air monitoring plan provided by the entity.

ASPECT, EPA's emergency response aircraft, was deployed at approximately 7:30 a.m. this morning for a flyover of the site, and no plumes or actives fires were observed. The EPA's preliminary/draft report on the flight was provided to the TCEQ. The EPA is now flying ASPECT over the Arkema facility on regular intervals (approximately every 30 minutes). The EPA will continue to do flyover monitoring on the same schedule (or more often if needed) until the threat is over.

Additional ASPECT flights are being planned, as the Arkema Crosby Plant remains inaccessible due to Hurricane Harvey flood conditions.

The TCEQ participated in a 9:30 a.m. conference call with HCPC, Harris County Fire Marshal, the Crosby Volunteer Fire Department, Greater Harris County LEPC, Arkema personnel, and others. The TCEQ also held a conference call with Arkema at noon and 4:00 p.m. today. During the calls, Arkema verified there are nine (9) trailers on site containing organic peroxide (including the one which burned). The estimates of organic peroxide decomposition and potential for emergency incident(s) are between mid-morning today through mid-day Saturday and are predicted to be similar to what has occurred. Arkema's telemetry temperature readings of the interior temperature of the trailers indicate temperatures inside the trailers continue to rise.

The EPA (Roberto Bernier) and TCEQ (R12 ERC Kendra Bernhagen) are on scene at the command post.

From: Guadalupe Quiroz
Sent: Wednesday, August 30, 2017 10:30 PM
To: HSNotify <HSNotify@tceq.texas.gov>
Subject: Update No. 2 - Potential Air Release, Explosion, Fire/R12/Arkema Crosby Plant - Notification of Significant Incident

Update No. 2

The TCEQ participated in a 5:00 p.m. conference call today with representatives of Harris County Pollution Control, US Coast Guard, Harris County Fire Marshal, the Crosby Fire Department, Greater Harris County LEPC, Arkema personnel, and others. During the call, Arkema explained that the timeline of the organic peroxide decomposition and potential for emergency incident(s) would occur within 6 to 22 hours and could be a series of events occurring over multiple days. Arkema's telemetry temperature readings of the interior temperature of the trailers indicate temperatures inside the trailers are rising. The total number of trailers containing organic peroxide on site has increased to 10. There are also other trailers on site that Arkema said were empty. The number and content of trailers are still being identified, as the Arkema Crosby Plant remains inaccessible due to Hurricane Harvey flood conditions.

Arkema is in discussions with Garner Environmental to be immediately prepared to conduct air monitoring and contain discharge after an incident.

There is a command center established approximately 3 miles of the Arkema Crosby Plant; the command center objectives are Search and Rescue (SAR) and monitoring the Arkema Crosby Plant situation.

Arkema stated that government officials are actively evacuating people; however, there are some residents resistant to leave their residences.

The President and CEO of Arkema, Inc., Rich Rowe, held a press conference today and released this statement: http://www.arkema-americas.com/en/social-responsibility/incident-page-2/

From: Guadalupe Quiroz
Sent: Wednesday, August 30, 2017 2:53 PM
To: HSNotify <HSNotify@tceq.texas.gov>
Subject: Update No. 1 - Potential Air Release, Explosion, Fire/R12/Arkema Crosby Plant - Notification of Significant Incident

Update No. 1

As of 12:30 today, Arkema has heightened concerns with the status of two (2) of its trailers containing organic peroxides, and it anticipates there will be an incident (e.g., flash fire) at the Arkema Crosby Plant within the next 12-24 hours. Arkema does not anticipate a major explosion.

The no fly zone over the plant has been reduced from 8 miles to 1.5 miles. The ground evacuation zone continues to be 1.5 miles.

Arkema receives remote monitoring data from KLLM Services, its refrigeration trailer contractor, every two (2) hours. The data include interior temperatures of the trailers and the amount of diesel fuel remaining. Arkema noted the temperatures are rising at a rate of 1-1.5 degrees/hour. Arkema committed to provide to the TCEQ specific information it has on temperatures in the trailers. Arkema has noted that the remote monitoring data may be compromised due to local conditions and water exposure.

The eight (8) trailers on site at the Arkema Crosby Plant contain various organic peroxide products with different temperature requirements; some of the products must be maintained at a temperature of minus 10° - 20° Fahrenheit to prevent auto-ignition. The organic peroxides in the trailers are stored in five (5) gallon jerry cans. Each of the eight (8) trailers contains up to 38,000 pounds of organic peroxides. At this time, only one (1) trailer has a working chiller.

Arkema does not know precisely which organic peroxide products are contained in each trailer (the transfer from the refrigerated warehouse to refrigerated trailers was conducted quickly in the Hurricane Harvey weather conditions). Arkema stated that the worst case scenario would be a vapor cloud and a flash fire due to a lack of over-pressure. If there is no fire, the materials would quickly evaporate and potentially release methane and alcohols. Other materials at the site include approximately 46,000 pounds of Sulfur Dioxide and approximately 31,000 pounds of Isobutylene. Arkema stated that they do not anticipate a big explosion since there are no over-pressurization risks.

The Arkema Crosby Plant remains inaccessible due to Hurricane Harvey flood conditions.

The EPA's emergency response aircraft, called ASPECT, is being deployed today to assess site conditions at the Arkema Crosby Plant. The equipment on ASPECT will be able to detect chemical leaks, thermally image the facility, and obtain aerial photos of current site conditions.

The TCEQ has daily conference calls with the facility, CID, EPA, and other government agencies.

From: Guadalupe Quiroz
Sent: Tuesday, August 29, 2017 10:13 PM
To: HSNotify <HSNotify@tceq.texas.gov>
Subject: Initial - Potential Air Release, Explosion, Fire/R12/Arkema Crosby Plant - Notification of Significant Incident

TCEQ Notification Type: Notification of Significant Incident

Notification Status: Initial

General Incident Information:
Type of Incident: Potential Air Release/Discharge/Fire/Explosion
Date: 8/29/2017
Time Incident Started: Approximately 11:00 p.m. on 8/28/2017
Time TCEQ Notified: The Houston Region ER Team was monitoring media outlets overnight, saw a media outlet's report about a possible discharge/explosion/fire risk at the Arkema Crosby Plant (Arkema), and achieved positive contact at 6:32 a.m. today. The attached NRC report was filed by the Military at 3:35 p.m. today.
TCEQ Region: 12- Houston

Responsible Party (RP)/Regulated Entity Information/Incident Location
RP/Regulated Entity Name: Arkema Crosby Plant (Arkema)
RN Number: 100210301
Incident location: 18000 Crosby Eastgate Rd.
City: Crosby
County: Harris
RP Contact Name and Information: Jean-Marie Cencetti (610-878-6632)

Specific Incident Information:

Description of Event / Cause: Arkema produces and stores various materials for the production of liquid organic peroxides. The organic peroxides require refrigeration as they may explode from heat, shock, friction, or contamination. Due to the heavy rains in the Houston Region, Arkema currently has approximately 6 ft of standing water on the plant's site; these conditions and the loss of power at the plant compromised the refrigeration system of the peroxides.

Arkema personnel transferred on-site organic peroxides to eight (8) diesel fueled trailers equipped with refrigeration and temperature monitoring systems. Five (5) out of the eight (8) refrigeration trailers no longer have cooling capabilities. One (1) of the five (5) refrigerated trailers floated and was moved by floodwaters; it is currently still within facility boundaries, up against an on-site warehouse, and its chiller is working. The interior temperatures of six (6) of the eight (8) refrigerated containers are being remotely monitored. The interior temperatures of the remaining two (2) refrigerated trailers cannot be remotely monitored for reasons currently unknown by

the company. Arkema stated that the site is currently stable, but an explosion may occur if the various organic peroxide products in the eight (8) trailers are not maintained at the temperatures required to prevent self-ignition. The company representative said that Arkema has been in communication with the Department of Homeland Security and Crosby Fire Department with support from Harris County Office of Emergency Management.

Harris County Emergency Management and the Crosby Fire Department have been in contact with the SOC.

Material Released: No release has occurred
Amount Released: No release has occurred
Affected Media: Potentially Air, Land, and Water
Injuries or Fatalities: None
Other Risks: Explosion, Fire, Air Release

Current Response:
TCEQ Response: Emergency Response Coordinator (ERC) Catherine Sotelo and Emergency Response Work Leader (ERWL) Guadalupe Quiroz
TCEQ Responder Name and Contact Information: Guadalupe Quiroz (713-409-2517)
Incident Commander Name and Contact Information: Not established at this time
Other Federal, State, or Local Authorities on Site: Unknown at this time

Other Pertinent Information, If Applicable:
Weather: Hurricane Harvey/71 degrees Fahrenheit and Rain
Wind Direction: E at 6 mph

Potentially Impacted Receptors: Surrounding rural residential and industrial community. Residents within 1.5 miles of Arkema have been evacuated; reports conflict as to whether the evacuation is due to flooding or the situation at Arkema.

Other: None

**** PLEASE NOTE: This notification is based on the initial report of a spill / release / emission event / threat / or other such occurrence received by TCEQ. Since this notification may contain preliminary information, the TCEQ cannot verify the types or quantities of releases at this time and cannot make any definitive determination about the potential danger to human health or the environment as a result of this**

release. Specific chemicals, quantities, and the identified risk to human health and safety or environment may change as more information becomes available. TCEQ is providing the information available for the incident at the time of the notification. Staff may not have all the information requested on this Template.