Arkema Inc. Crosby Plant

Response to Hurricane Harvey
Daily Summary Report

Completed At:

Emergency Operations Center
Crosby Fire Department Station #2
123 S. Diamondhead Rd
Crosby, Texas

BVNA Project No. 02017-000555.00

Report Date: September 2, 2017

Prepared For: Mr. Harry J. Yekel, P.E.
Sr. Principle Engineer
harry.yekel@arkema.com

Prepared By: Karen Jones, CIH
Sr. Director of Operations Gulf Coast, IH
Client Manager
Houston, Texas
karen.jones@us.bureauveritas.com

DAILY REPORT

BUREAU VERITAS

Move Forward with Confidence

This purpose of this Industrial Hygiene assessment and report is to assist you, the client, in your responsibility to establish and maintain a loss control program to prevent illness and injury to your employees and others. Our activities and recommendations are a supplement to and not a substitute for, any part of your own responsibilities and activities. These services are based upon information supplied by client management and conditions that are readily observable, and should not be relied upon exclusively to prevent all possible illnesses, injuries or losses.

Table of Contents

1.0 INTRODUCTION 2
2.0 Real Time Air Monitoring 2
3.0 Analytical Air Sampling 2

ED_004042_00008004-00002

1.0 Introduction

This Arkema Inc. facility located in Crosby, Texas produces organic peroxides. Hurricane Harvey produced flooding of the facility which created a power failure to the refrigeration of the manufacturing and storage units. The loss of refrigeration increased the temperature of the organic peroxides creating a potential health and fire hazard. As a precautionary measure local authorities established a 1.5-mile radius mandatory evacuation zone around the facility.

On Wednesday August 30, 2017 Bureau Veritas North America, Inc. (BVNA) was retained by Arkema Inc.to collect perimeter air monitoring and sampling measurements. This report summarizes the sampling conducted from August 31 to the morning of September 2, 2017. Mapping of the locations are noted below.

2.0 Real Time Air Monitoring

All monitoring instrumentation was calibrated per the manufacturer's recommendations prior to air monitoring.

Handheld, real-time air monitoring was conducted for volatile organic compounds (VOCs) and benzene using RAE Systems UltraRAE instruments (see Table 1). Additionally, levels of particulate matter ($PM_{10\mu m}$) were monitored using TSI Dustrak monitors. Sampling locations are shown in Attachment A.

Table 1 Real-time Handheld Air Monitoring Readings
August 31, 2017 - September 2, 2017

Analyte	Instrument	Number of Readings	Number of Detections	Range of Detections
Benzene	UltraRAE	564	2*	< 1.0 ppm
VOC	UltraRAE	564	6	< 1.0 ppm

*Occurred while changing filters. Values were 0.075 ppm.

3.0 Analytical Air Sampling

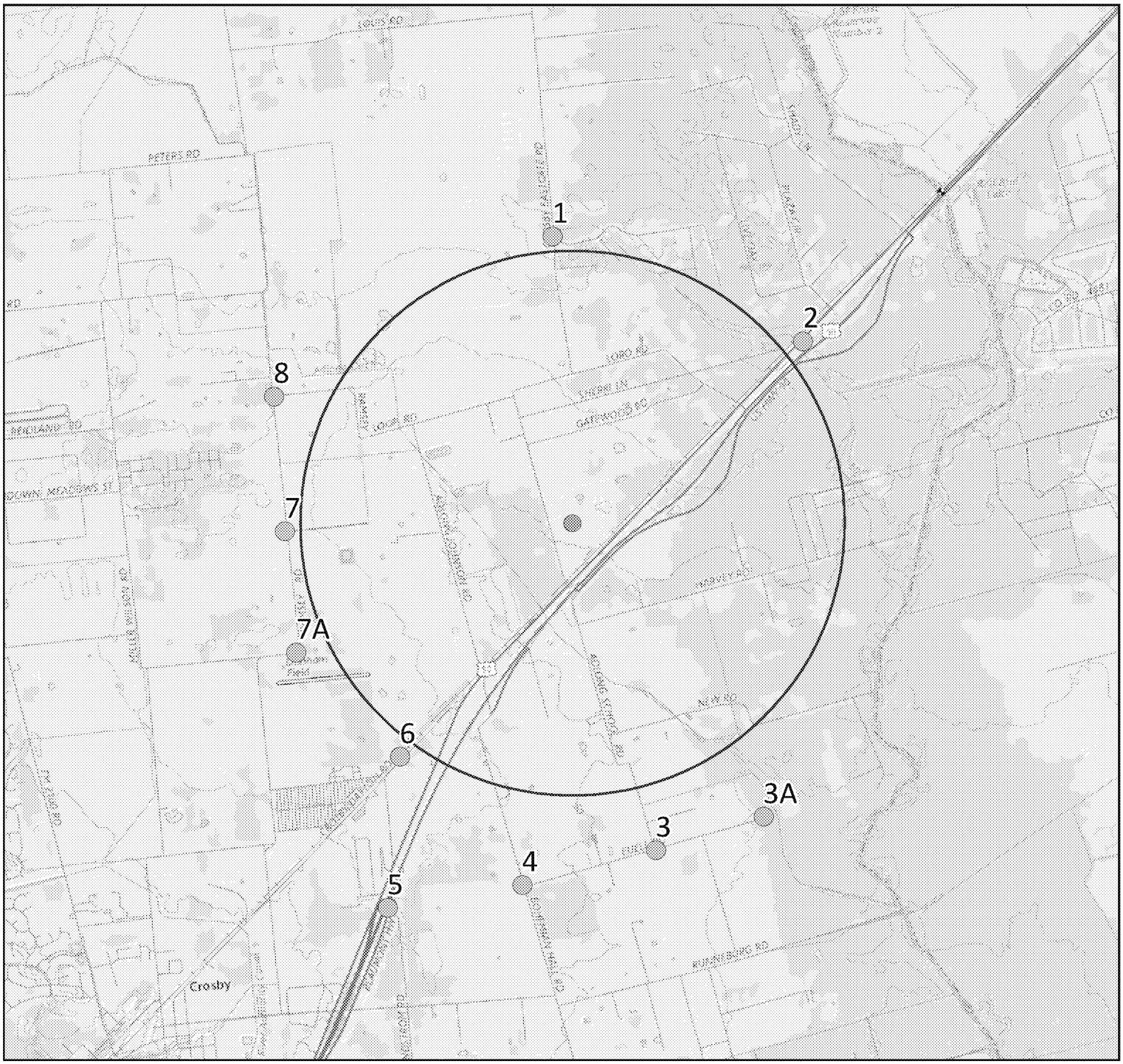
In addition to the real time monitoring discussed above, BVNA placed 1 liter Evacuated Canister (Minican™) samplers around the perimeter in order to collect air evenly over a 4 hour period. During the event yesterday, four samplers were running with two located downwind of the smoke cloud. Immediately after the event BVNA gathered four 1 liter Evacuated Canister (TO-Can) over a 10 minute period within the Newport neighborhood. Analytical air samples collected during and immediately following the event duration have been submitted to AB Labs, an AIHA-accredited laboratory for analysis using EPA Method TO-15 as well as analyzing for cumene. All other analytical air samples not collected during events were and will be submitted to SGS Galson Laboratories – an AIHA-accredited laboratory. Analytical air sampling receipts will be reported as soon as they are received from the laboratory.

ED_004042_00008004-00003

Attachment A

Site Location Map

ED_004042_00008004-00004



LOCATION

Scale: 1: 50,000

0 0.75 1.5 3 Miles

Legend

- Arkema Plant
- Sampling Locations
- 1.50 Mile Evac Zone

CHECKED BY:	MM
DRAWN BY:	TS
DATE:	9/02/2017
SCALE:	AS SHOWN
CAD NO:	NA
PROJ NO:	02017000555

AIR QUALITY MONITORING
ARKEMA CHEMICAL COMPANY
CROSBY, TX

BUREAU VERITAS

Figure 1