CTEH®

THE SCIENCE OF READY℠

SOUTH 4 GROUP FIRE

Port Neches, TX

Preliminary Community Air Monitoring

Data Summary

December 10, 2019

Project #112312

1.0 Introduction

On November 27, 2019 at approximately 04:00 Central Standard Time (CST), TPC Group requested that CTEH® provide air monitoring and analytical air sampling support in response to a tank fire at the TPC Group facility located in Port Neches, Texas. CTEH® arrived on-site on November 27, 2019 at 08:00 CST and began real-time air monitoring and analytical air sampling operations at approximately 10:00 CST.

This report summarizes real-time air monitoring data collected from December 9, 2019 06:00 CST to December 10, 2019 06:00 CST at outdoor locations within the community.

2.0 Air Monitoring and Sampling Methods

CTEH® developed and implemented an Air Sampling Analysis Plan (SAP) to document and quantify the potential release of fugitive emissions from the incident at ground level. The SAP has been approved by local, state, and federal representatives of the on-site Unified Command (UC). In accordance with the SAP, sustained 1,3-butadiene detections of 0.5 ppm or greater and volatile organic compound (VOC) detections of 5.0 ppm or greater in the community are to be communicated to the Federal On-Scene Coordinator.

Real-time air monitoring was conducted for 1,3-butadiene, benzene, fine-sized particulate matter ($PM_{2.5}$), nitrogen dioxide (NO_2), volatile organic compounds (VOCs), and atmospheric flammability measured as the percentage of the lower explosive limit (%LEL). Real-time air monitoring was conducting using handheld instruments including Drager X-PID 8500, MultiRAEs, UltraRAEs, and TSI SidePak™ AM510/AM520 Aerosol Monitors. All instrumentation was calibrated at least once per day or per manufacturer's recommendations. Target analytes were measured as listed in **Table 1** below. Roaming air monitoring was performed in community areas with handheld instruments. All handheld air monitoring was conducted in the breathing zone.

In addition, CTEH® also collected analytical air samples for analysis of airborne VOCs, polynuclear aromatic hydrocarbons (PAHs) and asbestos in the surrounding community at the time of this report. These samples are sent to a 3rd-party accredited laboratory for subsequent chemical analysis. Air sampling data will be summarized in a separate report.

3.0 Air Monitoring Results

Attachment A provides maps of the locations of handheld air monitoring and analytical air sampling in community residential areas, as well as a map of zones within the community. A cumulative summary of the community handheld air monitoring results is presented in **Table 1. Table 2** and **Table 3** include a subset of the cumulative data provided in Table 1 and summarize the results of handheld air monitoring conducted in Zones 1 and 8, respectively.

Table 1: Community Handheld Real-Time Air Monitoring Results (All Zones)

Analyte	Instrument	# of Readings	# of Detections	Range*
1,3-Butadiene	Drager X-PID 8500	268	0	< 0.07 ppm
	UltraRAE	1,849	0	< 0.01 ppm
Benzene	Drager X-PID 8500	230	0	< 0.02 ppm
	UltraRAE	3	0	< 0.01 ppm
%LEL	MultiRAE	1,042	0	< 1 %
Nitrogen Dioxide (NO_2)	MultiRAE	62	0	< 0.1 ppm
Particulate Matter ($PM_{2.5}$)	AM510	294	294	0.009 - 0.37 mg/m^3
	AM520	44	44	0.026 - 0.053 mg/m^3
VOCs†	MultiRAE	2,118	4	0.1 ppm

*If no detection was observed, the instrument detection limit preceded by a "<" symbol is listed. These data have not undergone QAQC and should be considered preliminary at this time. †Volatile organic compounds, all detections were 0.1 ppm.

Table 2: Zone 1 Community Handheld Real-Time Air Monitoring Results‡

Analyte	Instrument	# of Readings	# of Detections	Range*
1,3-Butadiene	Drager X-PID 8500	53	0	< 0.07 ppm
	UltraRAE	313	0	< 0.01 ppm
Benzene	Drager X-PID 8500	52	0	< 0.02 ppm
%LEL	MultiRAE	194	0	< 1 %
Particulate Matter ($PM_{2.5}$)	AM510	34	34	0.013 - 0.37 mg/m^3
	AM520	30	30	0.026 - 0.053 mg/m^3
VOCs†	MultiRAE	361	0	< 0.1 ppm

*If no detection was observed, the instrument detection limit preceded by a "<" symbol is listed. These data have not undergone QAQC and should be considered preliminary at this time. †Volatile organic compounds. ‡These results are a subset of the results provided in Table 1.

Table 3: Zone 8 Community Handheld Real-Time Air Monitoring Results‡

Analyte	Instrument	# of Readings	# of Detections	Range*
1,3-Butadiene	Drager X-PID 8500	114	0	< 0.07 ppm
	UltraRAE	204	0	< 0.01 ppm
Benzene	Drager X-PID 8500	82	0	< 0.02 ppm
%LEL	MultiRAE	231	0	< 1 %
Particulate Matter ($PM_{2.5}$)	AM510	114	114	0.011 - 0.032 mg/m^3
VOCs†	MultiRAE	316	3	0.1 ppm

* If no detection was observed, the instrument detection limit preceded by a "<" symbol is listed. These data have not undergone QAQC and should be considered preliminary at this time. †Volatile organic compounds ‡These results are a subset of the results provided in Table 1.

No detections of 1,3-butadiene, benzene, %LEL, or NO_2 were observed in the community during this reporting period. VOCs were detected infrequently, and all detections of VOCs were reported below the action level for VOCs approved by UC. The average of the detections for all $PM_{2.5}$ readings collected during this reporting period was 0.025 mg/m^3.

4.0 Weather Conditions

Attachment B contains a wind rose depicting wind speed and direction for this reporting period. Data were acquired from the Nederland High School (C1035) meteorological station located on 2108 N 18th St approximately 4 miles west of the incident site.

Attachment A

CTEH Community Air Monitoring Locations

ED_004345_00000294-00005

Handheld Real-Time Community Monitoring Locations

South 4 Group Fire | Port Neches, TX | 12/9/2019 06:00 - 12/10/2019 06:00 CST

Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *12/10/2019 10:36:30 AM*

Handheld Real-Time Community Monitoring Locations (Benzene)

South 4 Group Fire | Port Neches, TX | 12/9/2019 06:00 - 12/10/2019 06:00 CST

Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson

*Data for multiple equipment types are reported according to the detection limit of the least-sensitive device.
For a full representation of the real-time monitoring data, please refer to the summary table in the daily reporting summary.

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *12/10/2019 10:38:10 AM*

Handheld Real-Time Community Monitoring Locations (1,3-Butadiene)

South 4 Group Fire | Port Neches, TX | 12/9/2019 06:00 - 12/10/2019 06:00 CST

Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *12/10/2019 10:40:50 AM*

Handheld Real-Time Community Monitoring Locations (%LEL)

South 4 Group Fire | Port Neches, TX | 12/9/2019 06:00 - 12/10/2019 06:00 CST

Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *12/10/2019 10:42:05 AM*

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Handheld Real-Time Community Monitoring Locations (NO2)

South 4 Group Fire | Port Neches, TX | 12/9/2019 06:00 - 12/10/2019 06:00 CST

Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *12/10/2019 10:43:30 AM*

Handheld Real-Time Community Monitoring Locations (PM2.5)

South 4 Group Fire | Port Neches, TX | 12/9/2019 06:00 - 12/10/2019 06:00 CST

Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *12/10/2019 10:44:25 AM*

Handheld Real-Time Community Monitoring Locations (VOCs)

South 4 Group Fire | Port Neches, TX | 12/9/2019 06:00 - 12/10/2019 06:00 CST

Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *12/10/2019 10:45:28 AM*

CTEH

Analytical Sampling Locations

South 4 Group Fire | Port Neches, TX | 12/9/2019 06:00 - 12/10/2019 06:00 CST

Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* DATUM: *North American 1983* LAST UPDATED: *12/9/2019 6:29:52 PM*

Attachment B

Meteorological Conditions

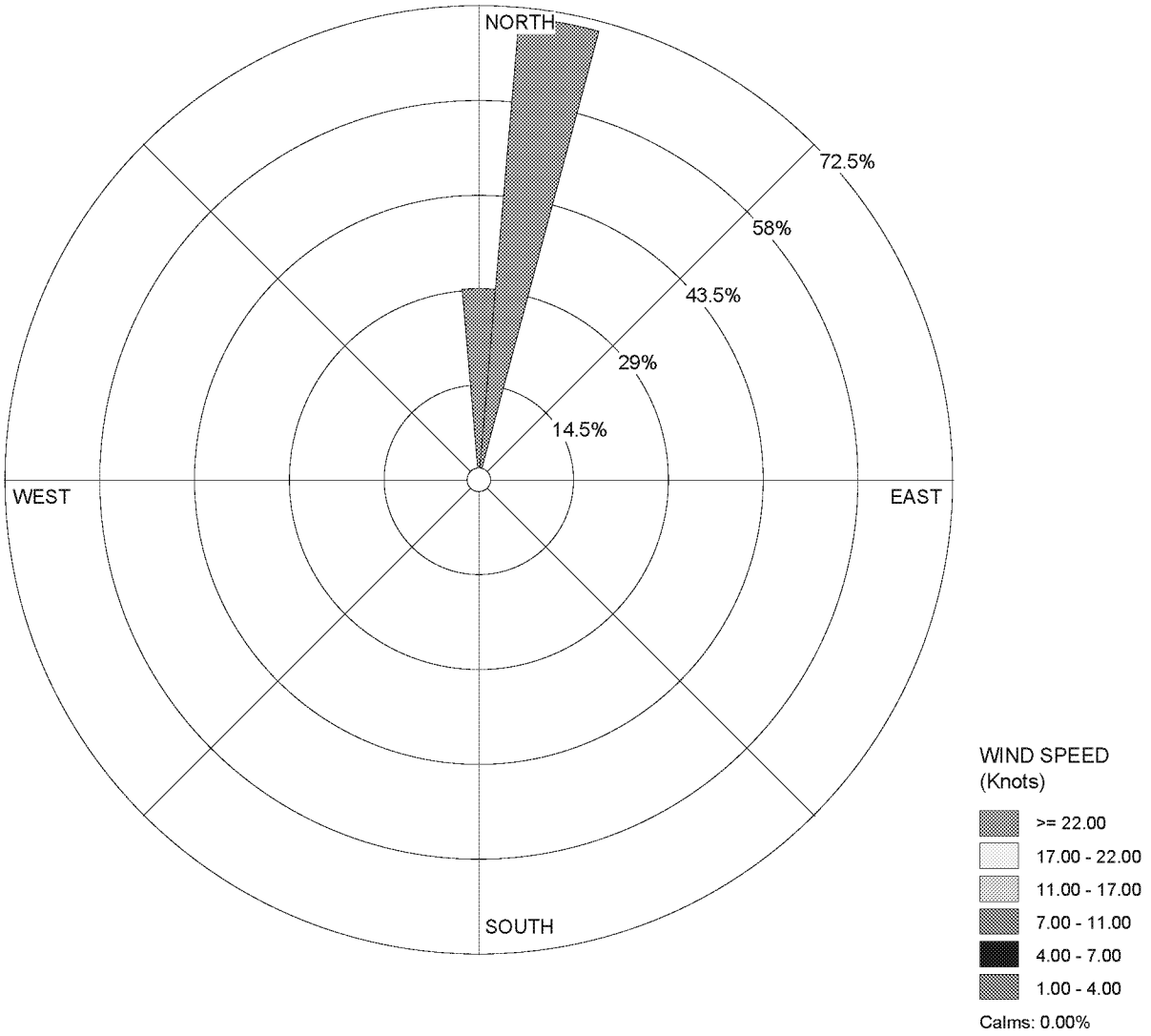
ED_004345_00000294-00014

WIND ROSE PLOT:

South 4 Group Fire
Dec 9, 2019 06:00 to Dec 10, 2019 06:00

DISPLAY:

Wind Speed Direction
(blowing from center point)



COMMENTS:		COMPANY NAME:	
		CTEH, LLC	
		MODELER: **Chance Gilliam**	
	CALM WINDS: **0.00%**	TOTAL COUNT: **24 hrs.**	
	AVG. WIND SPEED: **189.00 Knots**	DATE: **12/10/2019**	PROJECT NO.: **112312**

WRPLOT View - Lakes Environmental Software