United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance
Office of Criminal Enforcement, Forensics and Training

National Enforcement Investigations Center

NEIC

NEICVP1456E03
Replacement Report

NEIC CIVIL INVESTIGATION REPORT
GMAP R6 Pollution Accountability Team FY2022

Calcasieu Parish, Louisiana
St. Charles Parish, Louisiana
St. James Parish, Louisiana
St. John the Baptist Parish, Louisiana

Investigation Dates:
April 11-23, 2022

Project Manager

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INVESTIGATION OVERVIEW

This report (NEICVP1456E03) replaces the following U.S. Environmental Protection Agency (EPA) National Enforcement Investigations Center (NEIC) report in its entirety: NEICVP1456E01 (June 2022). This replacement was necessary to correct the following: isobutane was used to calibrate the photoionization detector (PID); the previous report stated that isobutylene was used. Total VOC concentrations determined by the PID in this report have been recalculated and are reported as isobutylene equivalent for consistency with previous NEIC GMAP reports.

U.S. Environmental Protection Agency (EPA) Region 6 (Region) requested the EPA National Enforcement Investigation Center (NEIC) to perform an EPA draft Other Test Method (OTM) 33, *Geospatial Measurement of Air Pollution, Remote Emissions Quantification*, (GMAP) survey both outside and inside the fence line of various stationary sources of air pollution in or nearby Calcasieu Parish, St. Charles Parish, St. James Parish, and St. John the Baptist Parish, Louisiana. GMAP surveys may help regulated entities, the government, and the public locate elevated pollutant concentrations on or near selected facilities (concentration mapping) and identify potential emission sources that may contribute to these elevated pollutant concentrations (emission source characterization). The Region, in consultation with state and citizen partners, provided guidance to NEIC on selecting facilities of interest. Entry was made into select facilities identified by EPA Region 6 personnel.

The GMAP survey was conducted from April 11-23, 2022, beginning in Calcasieu Parish and ending in St. James Parish, Louisiana. Measured air pollutants included methane (CH_4); ethylene oxide (EtO); total volatile organic compounds (VOCs); and benzene (BEN), toluene (TOL), m-xylene (XYM), and p-xylene (XYP) [collectively referred to as BTX]. Sulfur dioxide (SO_2) was monitored while the GMAP team was traveling to and at one facility. Forward-looking infrared (FLIR) cameras capable of visualizing gaseous volatile organic compounds were used to locate potential upwind emission sources when elevated readings were detected. Air samples were collected at selected locations using 1.4-liter (L) evacuated canisters, following the NEIC operating procedure *Air Sampling,* NEICPROC/11-008.

This report summarizes the field measurement results obtained using the on-board PID and differential ultraviolet absorption spectrometer (DUVAS) instruments and the FLIR camera, and it describes the canister sampling process (discussed below). A separate report summarized the field measurement results for CH_4 and EtO obtained using the cavity ring-down spectrometer (CRDS). Analytical results from canister sampling were provided by the relevant analytical laboratories. Detailed field measurement results are provided in the appendices. Field measurement results from the PID and DUVAS instruments were processed into files in the Keyhole Markup Language (KML) format and are provided in **Appendix A**; FLIR camera video files in MP4 format that were collected by NEIC personnel are provided in **Appendix B**.

METHODOLOGY

General GMAP methodology is described in EPA draft test method OTM33 (version 1.2). Sub-method OTM 33A (version 1.3) provides detailed method requirements, performance metrics, and method quality indicators. This section of the report provides details about NEIC's implementation of this method.

PERSONNEL

The project team is identified in **Table 1**.

Table 1. PROJECT TEAM MEMBERS

Name	Organization	Role
Bradley Venner	EPA–NEIC	Project manager
Richard Helmich	EPA–NEIC	Principal GMAP operator
David Mahoney	EPA–NEIC	Field team member
Agustin Martinez	EPA–NEIC	Field team member
Nick Bobbs	EPA–Office of Enforcement and Compliance Assurance (OECA)–Air Enforcement Division (AED)–Stationary Source Enforcement Branch (SSEB)	Field team member
Chris Williams	EPA–OECA–AED–SSEB	Field team member
Ali Gitipour	EPA–Office of Research and Development (ORD)–Center for Environmental Measurement and Modeling–Air Methods and Characterization Division–Combustion Source Branch	Field team member
Justin Chen	EPA–Region 6–Enforcement and Compliance Assurance Division–Air Enforcement Branch	Field team member

INSTRUMENTATION

The instruments used in the survey are summarized in **Table 2**.

Table 2. GMAP ANALYTES AND INSTRUMENTATION				
Analyte/Measurand	**Instrument**	**Manufacturer**	**Model**	**Serial No.**
CH_4 and EtO	CRDS	Picarro	G2920	3726-UV1030
Benzene, toluene, m-xylene, p-xylene, sulfur dioxide	DUVAS	DUVAS	DV3000	DV1003
VOCs	PID	Ion Science	MiniPID2-HS	MP3SHLHSCU2
Motion-corrected wind speed and direction	Weather station	AirMar	200WX	3445952
Spatial location	Geographical positioning system	Hemisphere	Crescent R100	0734-4068-003
Imaging, VOCs	Infrared imaging camera	FLIR	GFx320	C12140

CALIBRATION

Calibration verifications for the DUVAS and PID were performed at the beginning and the ending of each working day. An additional calibration event was performed on April 23, 2022, to calibrate the DUVAS to measure SO_2. The gas cylinders used for calibration verification were maintained in a separate trailer. Corresponding calibration gases were metered to each instrument from the cylinders through a valved manifold. The calibration gases used in this project were a BTX mixture and SO_2 for the DUVAS and isobutane for the PID. Detailed descriptions and certificates of analysis (CoAs) of the calibration gases are in the project file. Calibration verifications also included analysis of an ultra-zero air that contains, at most, only very small quantities of any analyte.

Time periods during the calibration process when relatively constant zero gas and calibration gas responses were obtained were visually identified by Bradley Venner. A summary of the daily quantitative calibration results is shown in **Table 3**. Plots of the zero gas and calibration gas responses are shown in **Appendix C**.

Table 3. SUMMARY OF DAILY CALIBRATION VERIFICATION RESULTS					
Calibration Level (Span or Zero)	**Analyte**	**Calibration Standard Conc**	**Average Measured Conc of Calibration Events**	**Standard Deviation Between Calibration Events**	**Pooled Standard Deviation Within Calibration Events**
Span	VOCs (isobutane-equivalent)	1980	2100	200	30
Span	SO_2	382	529	N/A[1]	2.1
Span	Benzene	324	329	20	4.6
Span	Toluene	316	313	14	7.5
Span	m-xylene	315	363	58	21
Span	p-xylene	315	316	20	9.3
Zero	VOCs	0	-50	90	10
Zero	SO_2	0	1	N/A[1]	0.6
Zero	Benzene	0	0	3.6	2.9
Zero	Toluene	0	-1	8.1	4.2
Zero	m-xylene	0	-9	42	16
Zero	p-xylene	0	2	10	2.3

[1] N/A: Not applicable, only measured in one event.
NOTE: All concentrations are in parts per billion (ppb).

As noted above, the PID for this project was calibrated with isobutane, and VOC concentration raw data were output as ppb isobutane equivalent. The more common calibration gas used for a PID is isobutylene (isobutene), which has been used to calibrate the GMAP's PID in previous surveys. For consistency with previous reporting, all VOC concentrations provided in this replacement report and appendices have been converted from ppb isobutane equivalent to ppb isobutylene equivalent, unless otherwise noted. The conversion from VOC concentration in ppb isobutane equivalent to VOC concentration in ppb isobutylene equivalent requires division by the isobutane response factor, which is equal to 8 for the 10.6 eV lamp that was used in the vehicle.[1]

The ultra zero air was used to calculate a method detection limit (MDL) for each analyte. The MDL was calculated using the largest standard deviation for the zero standard from all valid calibration files multiplied by 2.39, the 99% quantile of a t-distribution with 60 degrees of freedom. A minimum detectable concentration (also referred to as an upper control limit or UCL) was calculated by multiplying the MDL by 2.2. The calculated MDL and UCL values for the DUVAS analytes are shown in **Table 4**. The calculated MDL and UCL values for the single SO_2 calibration event were 1.4 ppb and 3.1 ppb, respectively.

[1] Ion Science. "Technical/Application Article 02, ION Science PID Gas Sensor Response Factors" V. 1.0, Oct. 13, 2020.

Table 4. GMAP DAILY MAPPING SCALES, OVERALL UCL, AND MDL								
	Benzene		Toluene		m-xylene		p-xylene	
Largest Standard Deviation	5		7		25		3	
MDL[1]	13		17		61		7	
UCL[2]	28		37		130		16	
Day	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*
4/11/2022	14	57	26	83	61	267	15	40
4/12/2022	13	56	29	87	100	306	11	36
4/13/2022	13	56	17	75	62	268	14	39
4/14/2022	13	56	25	83	73	279	7	33
4/15/2022	13	56	26	84	183	390	7	33
4/16/2022	20	63	17	75	82	288	26	51
4/18/2022	14	57	17	75	61	267	25	50
4/19/2022	13	56	18	76	61	267	24	49
4/20/2022	16	58	19	77	61	267	12	37
4/21/2022	16	59	31	88	61	267	12	37
4/22/2022	13	56	22	79	113	319	11	37
4/23/2022	13	56	17	75	82	288	12	37

[1] MDL: method detection limit
[2] UCL: upper control limit
NOTE: All concentrations are in parts per billion (ppb)

DATA MANAGEMENT

Instrument operation and data collection were managed by an on-board computer running custom application software, Mobile Emissions Monitoring Software (MEMS), version 6.2.1. Data were sampled and recorded from each instrument approximately every second. Data were stored in individual, tab-delimited text files that were started and stopped by the instrument operator. Individual text files are referred to as “mapping runs.” The MEMS software displays selected analytes in real-time, which allows for dynamic vehicle routing based on observed measurements. Canister sampling is also controlled, and the start/stop times are recorded by MEMS.

Isobutylene-equivalent VOC values were calculated by importing the text files created by the mapping software into the R statistical software package and dividing the isobutane-equivalent VOC values by 8. The text files were then exported to a new text file. The R scripts and the exported text files are available in the project file.

Individual text files were processed by the custom application software, Google Earth Map Plotter, version 1.7. This software produces KML files that can be opened using geographic information systems such as Google Earth Pro (GEP).

Mapping scales for each DUVAS analyte were calculated for each day. The minimum mapping scale (green) was calculated as the MDL plus the daily average concentration value for the zero

standard, if positive. The maximum mapping scale (red) was calculated as two times the UCL plus the daily average concentration for the zero standard, if positive. Values greater than maximum mapping scale appear on the maps as proportionally taller red bars.

For VOCs, it was necessary to adjust the daily mapping scales due to additional sources of noise that were not captured during calibration. The VOC baseline would shift shortly after switching to monitoring mode from calibration mode. This monitoring baseline would often drift within the course of the day as well. On several occasions, there was a noticeable shift in the baseline value between the time the GMAP team arrived at the facility and the start of monitoring at the facility, after safety briefings and other entry requirements were completed. Furthermore, a sine-wave oscillation in the baseline of about ±10 ppb with a period of about 4 minutes was present in many mapping runs. Therefore, a daily VOC minimum mapping scale was determined by visually examining data and choosing a value that represented a relative minimum value over the oscillation during the day. The minimum (green) mapping scale was set at this value plus 200 ppb, a maximum (red) was set at the minimum mapping scale plus 200 ppb, and a quantitation limit was set at the minimum mapping scale plus 100 ppb. Measured VOC values equal or greater than the maximum mapping scale are shown in red and appear on the map as proportionally taller bars. Because of the variation in the relative instrument baseline over the day, individual VOC maps should be examined with care before concluding the presence of an elevated VOC concentration.

The daily adjusted minimum and maximum mapping scales (listed by date) for each DUVAS analyte except for SO_2 are presented in **Table 4**; the daily offset for SO_2 was 1.2 ppb, resulting in a minimum mapping scale of 4.3 ppb and a maximum mapping scale of 7.4 ppb.

KML files were produced for each analyte and mapping run. In addition, analyte-specific KML files were produced where the maximum within the run exceeded the daily UCL. The resulting KML files are provided electronically as **Appendix A**. Directions for using GEP to visualize these KML files are provided in **Appendix D**.

QUALITY ASSURANCE

All GMAP measurements were performed in accordance with the NEIC quality system. All field sampling and measurements described in this report were within the scope of NEIC's ISO/IEC 17025 accreditation issued by the ANSI National Accreditation Board (certificate No. FT-0303), except for the motion-corrected anemometer and FLIR videos taken by AED or the Region (identified in **Appendix B**). The GMAP motion-corrected anemometer cannot be calibrated as a complete system; therefore, the uncertainty of this instrument cannot be verified.

According to the manufacturer, DUVAS-measured compounds are linear to a value of 1,000 ppb. According to the manufacturer, the operating range for the PID sensor is 0-3,000 ppb as isobutylene. Readings greater than these operating ranges will have a higher uncertainty.

The AirMar weather station failed to provide wind speed and direction data on several occasions, likely due to a communication error with the on-board computer. The most severe outages occurred on April 11, 2022, and April 22, 2022, when approximately 50% and 0%, respectively, of the wind speed and direction data were recorded. However, most survey days had at least one partial outage. During malfunction events, source attribution can be more challenging. Wind speed and direction data from the National Weather Service at nearby locations can be examined in the absence of data from the AirMar.[2]

For several mapping runs, the maximum concentration in the KML file was manually corrected. In these cases, the relevant concentrations are marked with an asterisk in **Appendix E**.

RESULTS

GMAP field measurement activities were conducted on 12 days during the investigation period. Detailed information of GMAP activities, indexed by mapping run, are provided in **Appendix E.** A summary of the information in **Appendix E**, indexed by day, is provided in **Table 5**. A summary of the facility information for each facility entered, including all personnel present at opening and closing meetings, is provided in **Appendix F**. Canister sampling times, locations, and operators are described in detail in **Appendix G**. FLIR video files are described in detail in **Appendix B**. The field logbook contains further information regarding the measurement and sampling activities performed for this project.

Table 5. SUMMARY OF FIELD ACTIVITIES BY DAY

Day	Facility Short Name[1]	Map ID	FLIR Video File Name[2] (MOV_####)	Canister(s)[3]
4/11/2022	Louisiana Integrated Polyethylene Sasol	220411_MA01-220411_MA44	AED: 0140 NEIC: 0181-0183	NEIC: 3068, 3071, 3101, 10027 ORD: 11670, 11685, 12169, 12318
4/12/2022	Phillips 66 - Lake Charles Citgo	220412_MA01-220412_MA52	AED: 0141 NEIC: 0184, 0185	NEIC: 521, 3116, 4612, 9497 ORD: 11686, 12151, 12175, 12307
4/13/2022	LOTTE Westlake - South	220413_MA01-220413_MA54	NEIC: 0186 – 0188	NEIC: 4609, 4621 ORD: 11678, 12137, 12148, 12171, 12306
4/14/2022	Westlake - North Citgo	220414_MA01-220414_MA52	AED: 0167 NEIC: 0191, 0192	NEIC: 4605, 10007

[2] https://www.weather.gov/help-past-weather, Accessed May 16, 2022.

Table 5. SUMMARY OF FIELD ACTIVITIES BY DAY				
Day	**Facility Short Name[1]**	**Map ID**	**FLIR Video File Name[2] (MOV_####)**	**Canister(s)[3]**
4/15/2022	Marathon - Garyville	220415_MA01- 220415_MA38	NEIC: 0193-0196	NEIC: 9490, 10009 ORD: 12158
4/16/2022	No facilities entered	220416_MA01- 220416_MA48		NEIC: 3066 ORD: 11669, 11680
4/18/2022	Evonik - Reserve NuStar - St. James	220418_MA01- 220418_MA74	AED: 0170, 0172, 0174 NEIC: 0204	NEIC: 527, 535, 4606 ORD: 12172
4/19/2022	Union Carbide - St. Charles	220419_MA01- 220419_MA50		NEIC: 00118, 00278, 10018 ORD: 11677, 12153, 12311
4/20/2022	Union Carbide – St. Charles MPLX - Mt. Airy	220420_MA01- 220420_MA50	AED: 0175	NEIC: 4602 ORD: 12156
4/21/2022	Occidental - Convent Plains Marketing - St. James Americas Styrenics - St. James	220421_MA01- 220421_MA57	AED: 0179-0181 NEIC: 0205, 0206	NEIC: 00279, 3073, 4601, 4618 ORD: 12159, 12161
4/22/2022	DuPont Denka	220422_MA01- 220422_MA25		NEIC: 519, 10008 ORD: 11675
4/23/2022	Nucor Steel Louisiana	220422_MA01- 220422_MA15		NEIC: 3119, 10023 ORD: 12173

[1] Detailed facility information available in Appendix F

[2] Video files identified by equipment owner (AED, NEIC) and file name identifier. The file name can be obtained by substituting the file name identifier (####) into the template MOV_####.mp4. Additional information on these video files is provided in Appendix B.

[3] Canisters are identified by canister owner (ORD, NEIC) and canister identifier. Additional information on the canister sampling process is provided in Appendix G.

CONCENTRATION MAPPING

Overviews of the mapping runs are shown in **Figures 1** and **2**. These maps show the locations of facilities (yellow pins), and all the locations where GMAP data was collected (green lines). Some tracks were excluded from this plot due to display errors in the Google Earth Pro software used to display these results; the KML files provided in Appendix A should be consulted to determine precise routes.

Figure 1. Overview of GMAP mapping runs; Calcasieu Parish, Louisiana; April 11-14, 2022

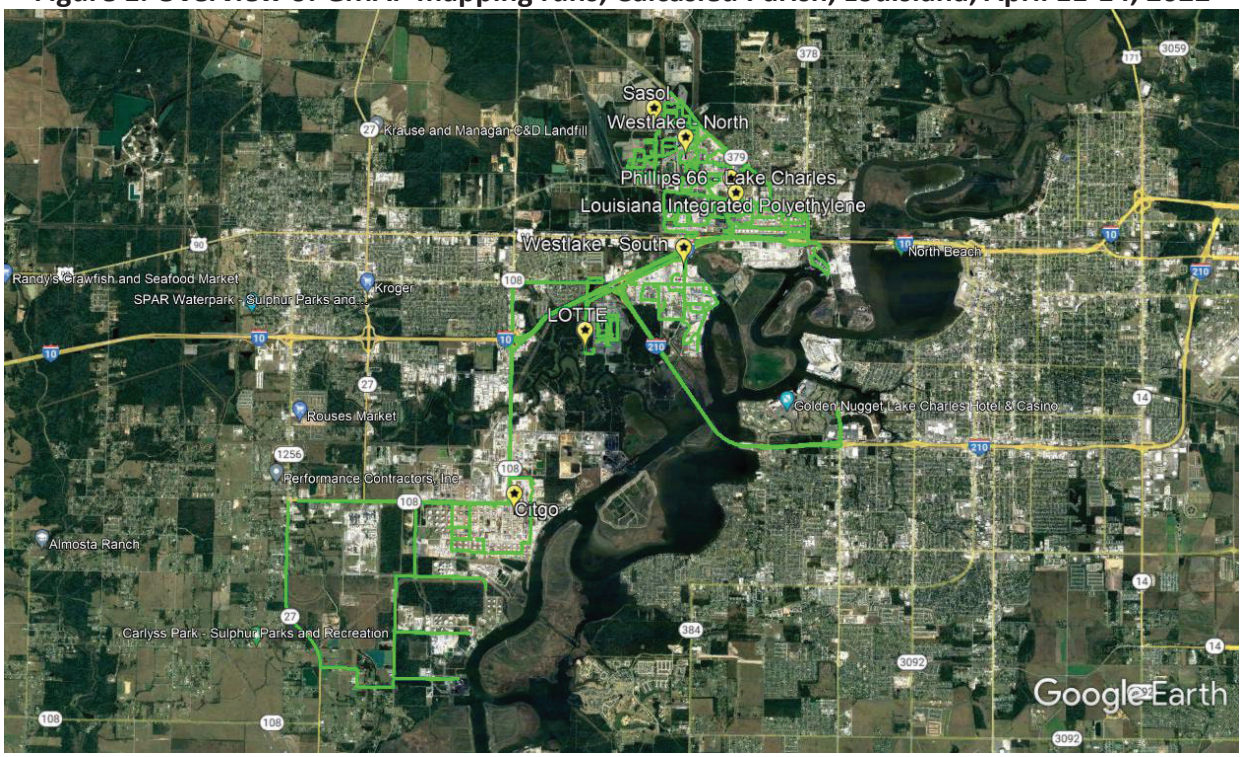
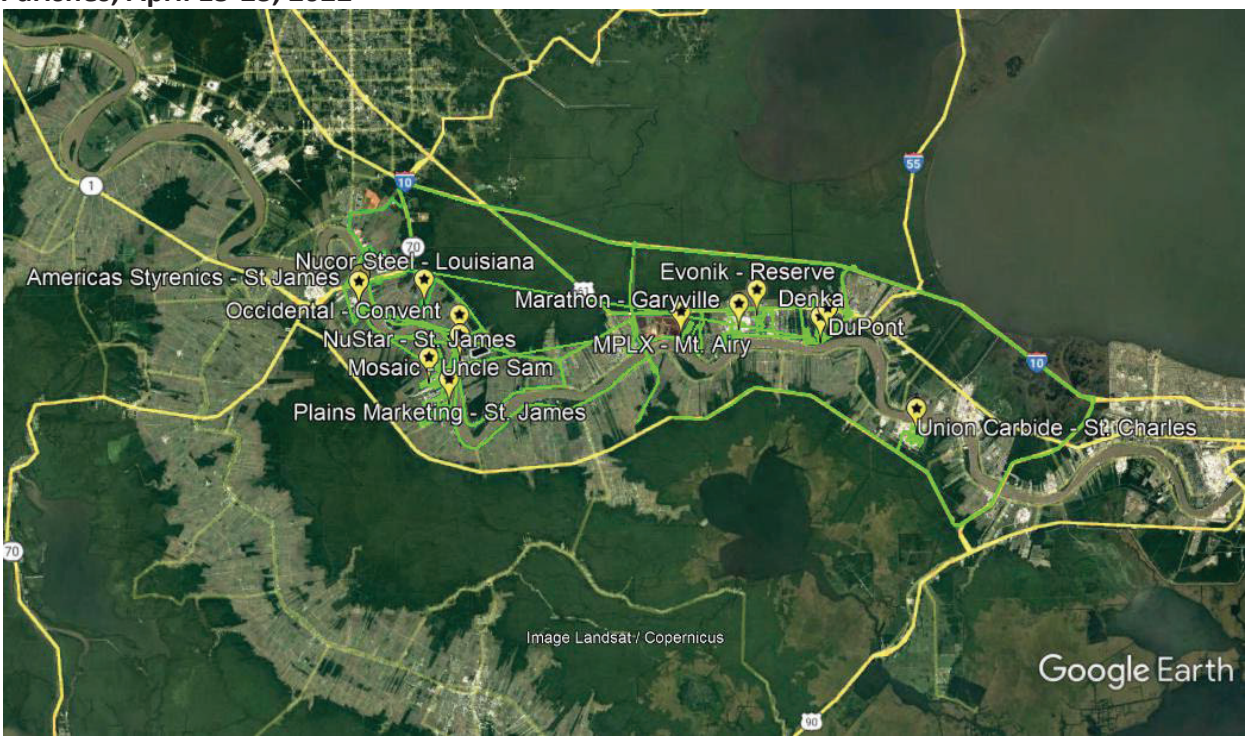


Figure 2. Overview of GMAP mapping runs; St. John the Baptist, St. James and St. Charles Parishes; April 15-23, 2022



SOURCE CHARACTERIZATION

Personnel from NEIC, AED and the Region used FLIR infrared imaging cameras to attempt to locate upwind sources of elevated concentrations detected during concentration mapping

activities. The table in **Appendix B** identifies the date and time of collection, the equipment used, the thermographer, the associated facility, and the mapping run where these videos were collected. The electronic version of this report includes 12 videos of gaseous emissions collected during the investigation on the NEIC camera by NEIC personnel in **Appendix B.** Videos collected by non-NEIC personnel are identified in the table to **Appendix B** but are not included in the electronic version of the report.

NEIC collected a total of 59 canister samples of air from 36 distinct locations during the GMAP survey during potentially elevated concentration events or as field blanks. One ORD canister and 34 NEIC canisters were sent to the ERG laboratory in Morrisville, North Carolina, for analysis, while 24 ORD canisters were sent to the ORD VOC laboratory in Durham, North Carolina. The canister identification number, designated laboratory, sampling time and location where these canister samples were collected are summarized in **Appendix G**. Digital copies of the chain of custody records for the canisters sent to the ERG laboratory are also included in **Appendix G**. The results of these analyses were reported by the respective laboratories, along with detailed information about the analytical measurement procedures used.

DISCUSSION

GMAP data are best used to screen for areas where further investigation using more traditional inspection and leak detection instruments can help to determine if emissions meet regulatory requirements.

Wind direction provides an important but not infallible source of information on the direction of potential emissions sources. For example, when the wind direction is changing frequently, a measured concentration may also be from an emitted plume that has been blown back to the source. Large obstructions such as tanks also have wakes that can generate local winds opposite of the prevailing wind direction. Additionally, the AirMar (wind speed and direction sensor) is located on top of the moving vehicle and can be affected by the vehicle slipstream at higher speeds. To avoid issues with vehicle slipstream causing erroneous wind data, the data is only recorded when the vehicle's speed is less than 25 miles per hour. The wind direction is determined with an internal magnetic compass that also may be affected by local magnetic fields and large, nearby metallic objects.

Appendix A
Mapping Log

VP1456E03
GMAP R6 Pollution Accountability Team FY2022
Calcasieu Parish, Louisiana
St. Charles Parish, Louisiana
St. James Parish, Louisiana
St. John the Baptist Parish, Louisiana

Please see folder sent with project report for digital KML files.
(168 files)

Appendix B
FLIR Video Log

VP1456E03
GMAP R6 Pollution Accountability Team FY2022
Calcasieu Parish, Louisiana
St. Charles Parish, Louisiana
St. James Parish, Louisiana
St. John the Baptist Parish, Louisiana

2 pages
Please see folder sent with project report for digital MP4 files collected on the NEIC camera.
(12 files)

Date/Time (CDT)	File Name[1] (+ .mp4)	Equipment Owner	Thermo-grapher	Facility Short Name	Potential Source	Video Length (mins)	Description	Associated Mapping Files
4/11/2022 15:15	MOV_0140	AED	Bobbs (AED)	Sasol	NA	1:36	NA	220411_MA28
4/11/2022 16:47	MOV_0181*	NEIC	Helmich (NEIC)	Sasol	Ground level goose neck	1:26	Emissions from ground-level goose neck vent	220411_MA35
4/11/2022 14:49	MOV_0182*	NEIC	Helmich (NEIC)	Sasol	Ground level goose neck	1:05	Emissions from ground-level goose neck vent	220411_MA35
4/11/2022 14:52	MOV_0183*	NEIC	Helmich (NEIC)	Sasol	Ground level goose neck	1:16	Emissions from ground-level goose neck vent	220411_MA35
4/12/2022 10:17	MOV_0141	AED	Bobbs (AED)	Phillips 66 - Lake Charles	Truck loading rack	1:21	NA	220412_MA08
4/12/2022 11:18	MOV_0184*	NEIC	Helmich (NEIC)	Phillips 66 - Lake Charles	Tank 2001	1:44	Emissions from tank near stair landing. Exact leak source indeterminate.	220412_MA13
4/12/2022 13:25	MOV_0185*	NEIC	Helmich (NEIC)	Phillips 66 - Lake Charles	Tank 338	1:36	Emissions from pressure release valve at top of tank.	220412_MA28
4/13/2022 11:24	MOV_0186*	NEIC	Helmich (NEIC)	LOTTE	Acetaldehyde tank	1:49	Emissions from thermal oxidizer at acetaldehyde sump drain	220413_MA16
4/13/2022 16:08	MOV_0187*	NEIC	Helmich (NEIC)	Westlake - South	Natural gas pipeline	1:19	Emissions from natural gas pipeline	220413_MA42
4/13/2022 16:10	MOV_0188*	NEIC	Helmich (NEIC)	Westlake - South	Natural gas pipeline	1:09	Emissions from natural gas pipeline	220413_MA42
4/14/2022 13:30	MOV_0191*	NEIC	Helmich (NEIC)	Citgo	Tank 2	0:26	Emissions from conservation vent on top of tank	220414_MA37
4/14/2022 14:02	MOV_0167	AED	Bobbs (AED)	Citgo	API oil/water separator	0:55	NA	220414_MA42
4/14/2022 14:53	MOV_0192	NEIC	Chen (R6)	Citgo	Tank 55	0:43	Emissions from tank eyebrow vent	220414_MA51
4/15/2022 9:28	MOV_0193	NEIC	Bobbs (AED)	Marathon - Garyville	Tank T-20-2	1:44	Emissions from top of tank	220415_MA03
4/15/2022 9:31	MOV_0194	NEIC	Bobbs (AED)	Marathon - Garyville	DGF-B	0:53	Emissions from open goose neck vent.	220415_MA03
4/15/2022 10:32	MOV_0195	NEIC	Bobbs (AED)	Marathon - Garyville	Tank 300-16	1:13	Degassing/emptying tank	220415_MA08
4/15/2022 11:14	MOV_0196	NEIC	Bobbs (AED)	Marathon - Garyville	Sewer grate	1:45	Emissions from sewer grate	220415_MA23
4/18/2022 10:20	MOV_0170	AED	Williams (AED)	Evonik - Reserve	EO scrubber stack	1:54	NA	220418_MA14
4/18/2022 15:09	MOV_0172	AED	Williams (AED)	NuStar - St. James	Tank 25	1:28	NA	220418_MA49
4/18/2022 15:42	MOV_0204*	NEIC	Helmich (NEIC)	NuStar - St. James	TK-6	2:15	Emissions along roofline of tank	220418_MA51
4/18/2022 15:42	MOV_0174	AED	Williams (AED)	NuStar - St. James	TK-6	0:44	Emissions along roofline of tank	220418_MA51
4/20/2022 12:13	MOV_0175	AED	Williams (AED)	Union Carbide	EO mound flare	1:11	NA	220420_MA27
4/21/2022 11:56	MOV_0205*	NEIC	Helmich (NEIC)	Barge FMT 3206	Barge vent	1:14	Emissions from barge vent	220421_MA16
4/21/2022 14:58	MOV_0206*	NEIC	Helmich (NEIC)	Barges FMT 3045 & FMT 3156	Vents at front of each barge	4:46	Emissions from vents at front of each barge	220421_MA32

Date/Time (CDT)	File Name[1] (+ .mp4)	Equipment Owner	Thermo-grapher	Facility Short Name	Potential Source	Video Length (mins)	Description	Associated Mapping Files
4/21/2022 17:00	MOV_0179	AED	Williams (AED)	Americas Styrenics - St. James	Condensate pumps	0:51	NA	220421_MA55
4/21/2022 17:02	MOV_0180	AED	Williams (AED)	Americas Styrenics - St. James	Condensate pumps	1:32	NA	220421_MA55
4/21/2022 17:20	MOV_0181	AED	Williams (AED)	Americas Styrenics - St. James	Condensate pumps	1:13	NA	220421_MA55

1: Videos marked with an asterisk (*) are provided in the electronic version of Appendix B.

Appendix C
Graphs of Calibration Results

VP1456E03
GMAP R6 Pollution Accountability Team FY2022
Calcasieu Parish, Louisiana
St. Charles Parish, Louisiana
St. James Parish, Louisiana
St. John the Baptist Parish, Louisiana

5 pages

Figure 1: Zero calibration data and mapping scales, BEN

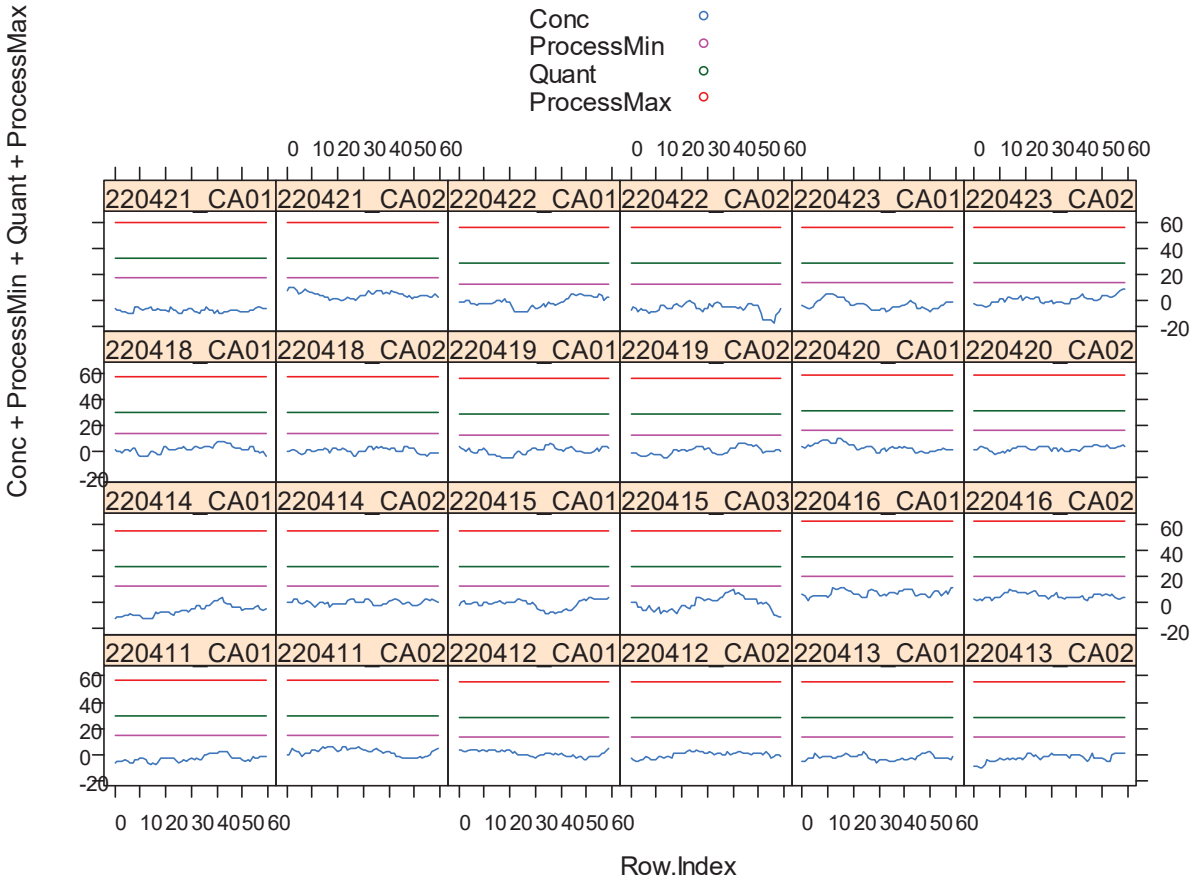


Figure 2: Zero calibration data and mapping scales, TOL

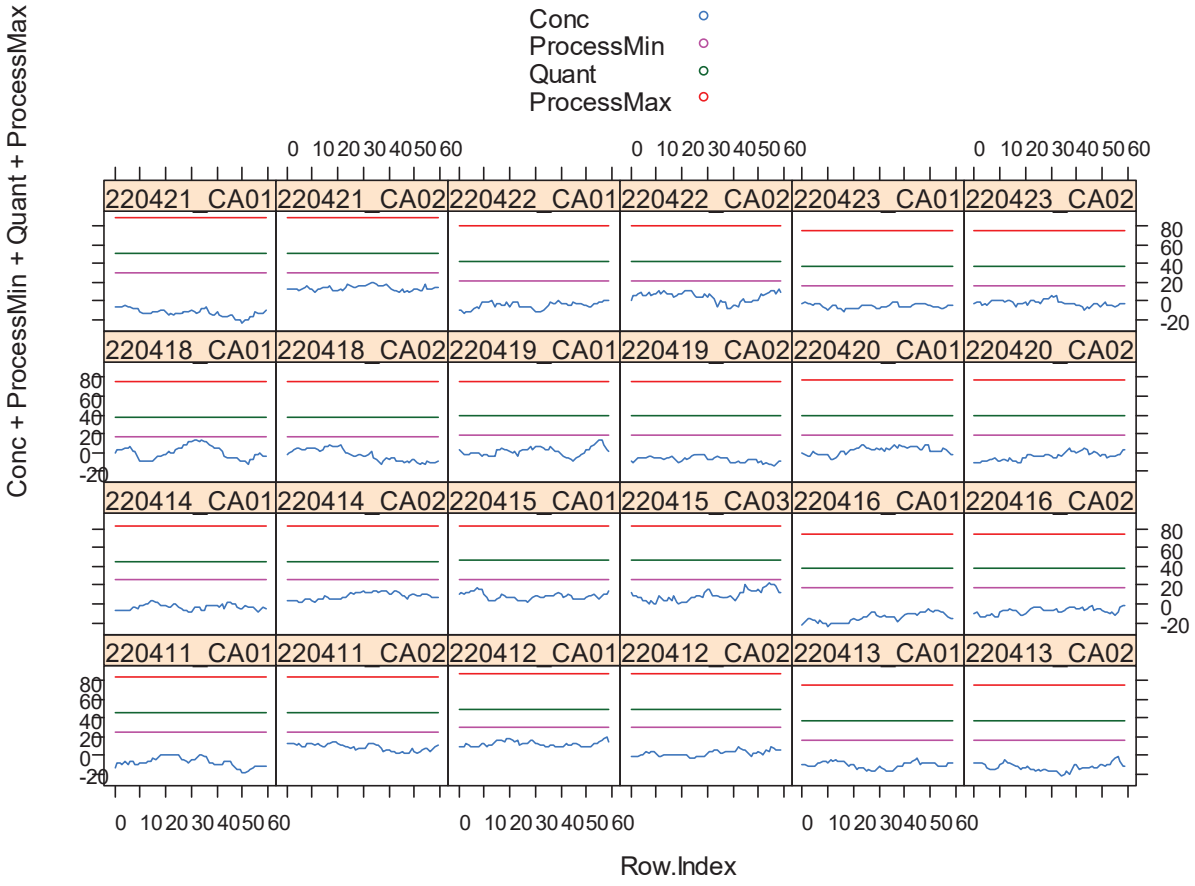


Figure 3: Zero calibration data and mapping scales, XYM

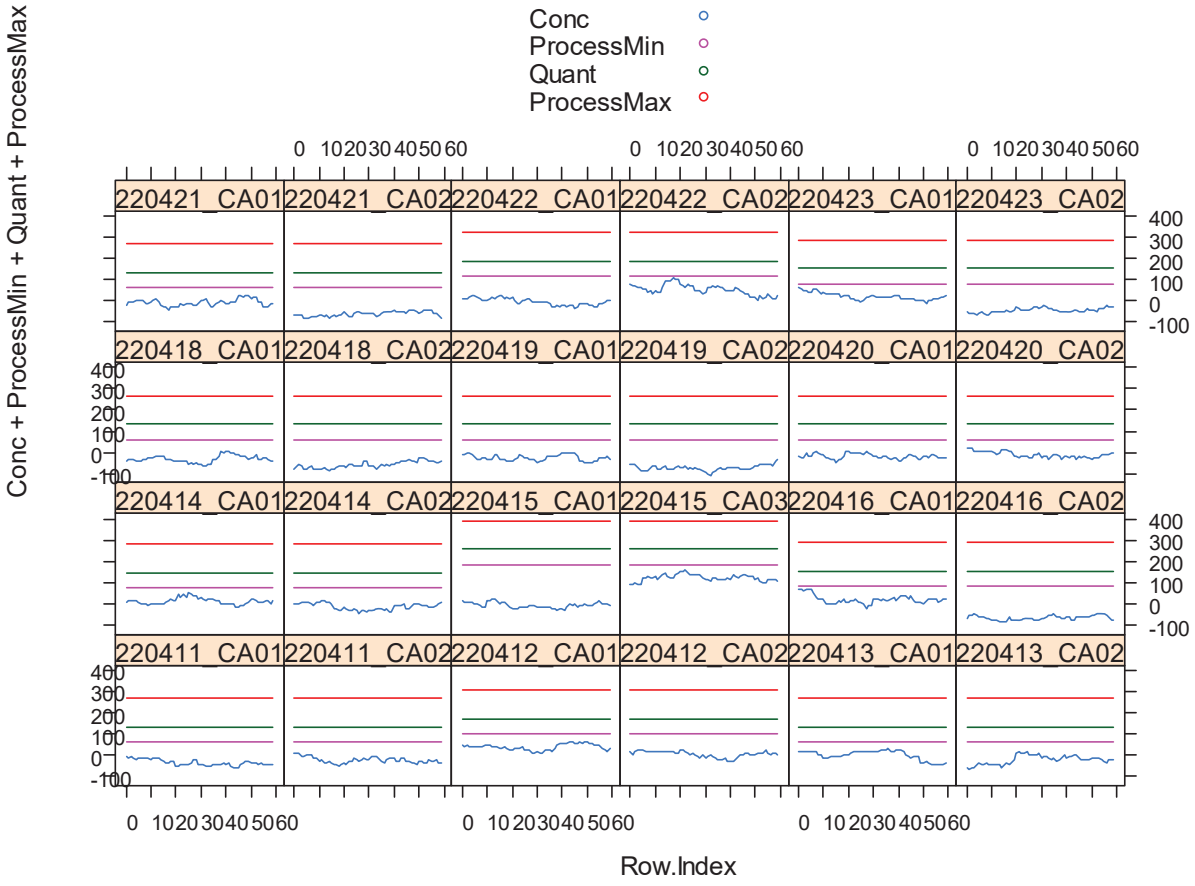


Figure 4: Zero calibration data and mapping scales, XYP

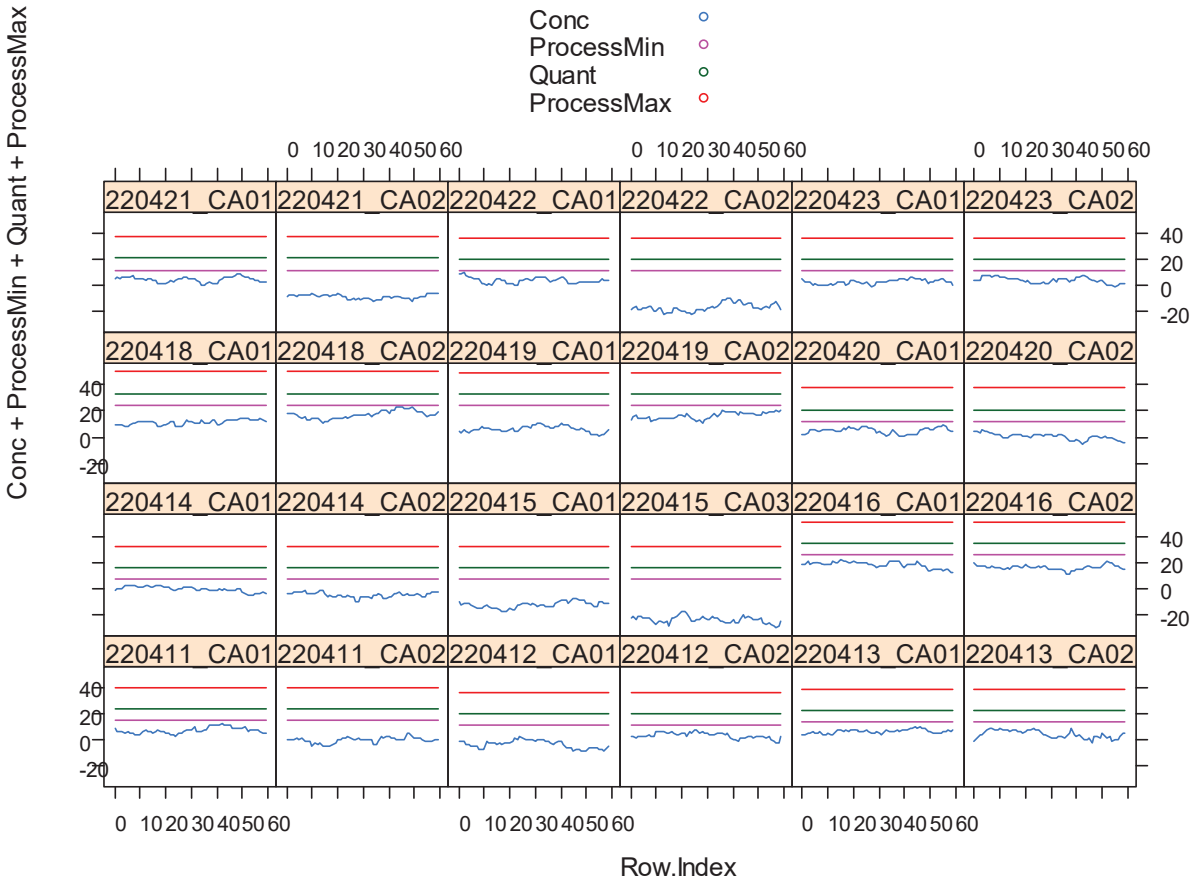
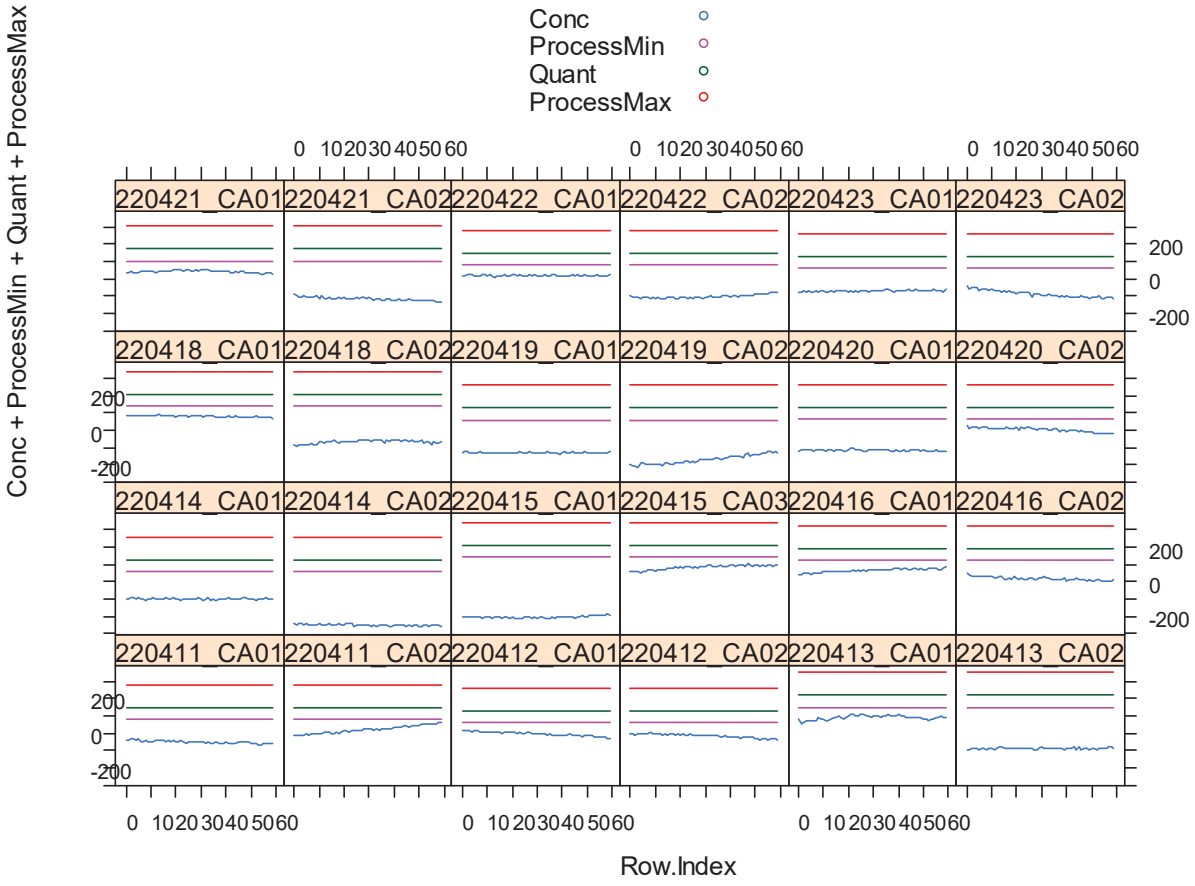


Figure 5: Zero calibration data and mapping scales, VOC



Appendix D
Using KML Files in Google Earth Pro

VP1456E03
GMAP R6 Pollution Accountability Team FY2022
Calcasieu Parish, Louisiana
St. Charles Parish, Louisiana
St. James Parish, Louisiana
St. John the Baptist Parish, Louisiana

3 pages

Google Earth Pro (GEP) is a free software program that may be downloaded and installed from the internet at https://www.google.com/earth/versions/. The KML files produced by the GMAP software are designed to be visualized by Google Earth Pro, although many other geographical information systems (GIS) will also be able to import and visualize these files. The directions below are designed to help new users understand the information present in the KML files and use Google Earth Pro to visualize this information.

The analyte concentrations are coded in a traffic-light-color-palette line or bar graphs. Low analyte concentrations are a green line or bar, with increasing concentrations corresponding to colors shifting from green to yellow to red. Concentration values lower than the mapping scale minimum (green) value appear as green lines. Concentrations higher than the mapping scale maximum (red) value appear as proportionally taller red bars. Each bar corresponds to a 1-meter distance travelled by the GMAP vehicle. The concentration value shown on the bar is the highest concentration value recorded inside that distance. Wind arrows are provided for each concentration bar only when the GMAP vehicle is moving slower than 25 miles per hour due to instrument limitations. The direction of the arrow is the wind direction, and the length of the arrow is proportional to the wind speed.

Controls in the upper right of the GEP image allow the user to turn the view and to set the magnification so that the image can be seen from the best perspective. After the software is installed, double-clicking a kml file will open the file in GEP under “Temporary Places” in the “Places” box on the left side of the screen. **Figure 1** is a screenshot of a GEP image showing selected data from the kml file 220415_MA07_VOC.kml, created on May 15, 2022. Double-clicking a second file will open that file, along with any others already open in GEP.

Figure 1. Screen shot of Google Earth Pro image displaying GMAP data.

Note the check boxes and dropdown arrows in the "Places" box. The dropdown arrows control the level of information that can be viewed in the "Places" box. The check boxes control what is displayed on the GEP image. In **Figure 1**, wind arrows and VOC concentration bars are displayed. If the concentration data are displayed in the "Places" box, clicking a concentration bar in the image will highlight the concentration value in the "Places" box. Clicking the dropdown arrow next to the wind check box and clicking on an individual wind arrow in the image would highlight the wind speed and direction for that wind arrow.

Upon opening 220415_MA07_VOC.kml, the VOC concentration map and wind data are displayed simultaneously. However, data for the file 220415_MA06_VOC.kml have been turned off by clicking the check box next to the file name. The map shows the average measured concentration of VOC within one meter in this mapping file. The concentration maximum scale is fixed such that it will appear as a red bar representing a height of 25 meters. In **Figure 1**, all concentrations greater than the maximum-scale value are red, representing a height greater than 25 meters in proportion to the concentration. The green concentration bars represent values that would not represent elevated VOC concentrations. Yellow or orange concentration bars represent values that would require some corroborating evidence to establish high confidence that they are true readings and not instrument noise outliers. Corroboration could

be the presence of a known source directly upwind, concentration of other compounds at the same place, or red or higher values adjacent to the yellow bar.

GEP has features that allow the user to generate jpeg images from the image on the screen. The user can add icons with labels to the maps. Legends, titles, and other information can be added to the jpeg images.

Appendix E
Mapping Results

VP1456E03
GMAP R6 Pollution Accountability Team FY2022
Calcasieu Parish, Louisiana
St. Charles Parish, Louisiana
St. James Parish, Louisiana
St. John the Baptist Parish, Louisiana

13 pages

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220411_MA01	8	16	43	15	106				
220411_MA02	7	9	22	11	86				
220411_MA03	9	13	42	16	28				
220411_MA04	10	12	34	14	31	Louisiana Integrated Polyethylene			
220411_MA05	7	6	11	16	7	Louisiana Integrated Polyethylene	LDPE		
220411_MA06	11	6	5	13	<0	Louisiana Integrated Polyethylene	LDPE		
220411_MA07	7	13	1	14	<0	Louisiana Integrated Polyethylene	LDPE		
220411_MA08	8	6	1	15	<0	Louisiana Integrated Polyethylene	Cracker		
220411_MA09	7	3	13	15	445*	Louisiana Integrated Polyethylene	Cracker		
220411_MA10	10	13	12	14	628	Louisiana Integrated Polyethylene	Cracker		NEIC 3071; ORD 11685
220411_MA11	8	8	18	12	379	Louisiana Integrated Polyethylene	Cracker		
220411_MA12	8	13	27	14	245	Louisiana Integrated Polyethylene	Cracker		
220411_MA13	7	7	24	12	<0	Louisiana Integrated Polyethylene	Cracker		
220411_MA14	9	15	31	13	21	Louisiana Integrated Polyethylene	Cracker		NEIC 10027; ORD 11670
220411_MA15	8	14	49	11	<0	Louisiana Integrated Polyethylene	Cracker		
220411_MA16	7	15	44	9	4	Louisiana Integrated Polyethylene			
220411_MA17	10	15	43	8	<0	Louisiana Integrated Polyethylene			
220411_MA18	8	17	51	10	<0	Louisiana Integrated Polyethylene			
220411_MA19	5	13	52	7	<0	Louisiana Integrated Polyethylene	Tank farm		
220411_MA20	5	16	56	5	<0	Louisiana Integrated Polyethylene	Loading rack		
220411_MA21	7	9	48	8	<0	Louisiana Integrated Polyethylene	Loading rack		
220411_MA22	8	15	40	6	<0	Louisiana Integrated Polyethylene	Loading rack		
220411_MA23	6	13	54	11	<0	Louisiana Integrated Polyethylene			
220411_MA24	5	13	34	9	1,197	Louisiana Integrated Polyethylene			
220411_MA25	10	17	41	9	<0	Sasol	EOEG		
220411_MA26	9	19	60	10	54	Sasol	EOEG		
220411_MA27	10	16	51	8	<0	Sasol	EOEG		
220411_MA28	12	19	61	10	152	Sasol	EOEG	AED MOV_0140	NEIC 3101; ORD 12318
220411_MA29	6	19	35	7	<0	Sasol	EO tank farm		
220411_MA30	5	10	50	6	<0	Sasol			
220411_MA31	9	12	44	10	<0	Sasol	alcohol storage		
220411_MA32	6	19	55	8	<0	Sasol	alcohol storage		
220411_MA33	5	10	23	6	10	Sasol	WWTP		
220411_MA34	5	21	40	9	22	Sasol	WWTP		

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220411_MA35	9	19	70	9	741	Sasol	EtO/Ethoxylate	NEIC MOV_0181; NEIC MOV_0182; NEIC MOV_0183	NEIC 3068; ORD 12169
220411_MA36	10	20	49	5	255	Sasol	Ziegler alcohol unit		
220411_MA37	7	19	61	5	<0	Sasol			
220411_MA38	8	18	52	6	518*	Sasol	Old ethylene unit		
220411_MA39	11	18	61	6	353	Sasol	Old ethylene unit		
220411_MA40	7	15	66	8	71	Sasol	Co-monomer		
220411_MA41	7	14	36	2	670	Sasol	Co-monomer		
220411_MA42	9	15	47	4	122	Sasol	Co-monomer		
220411_MA43	6	16	37	3	11	Sasol			
220411_MA44	9	19	53	8	157	Sasol	Zeigler alcohol unit		
220412_MA01	13	17	50	11	4,993	Recalibration at parking lot of hotel - ignore results			NEIC 4612; ORD 12175
220412_MA02	10	18	42	10	61				
220412_MA03	11	14	46	7	<0	Phillips 66 - Lake Charles	Reformer		
220412_MA04	8	14	68	8	6	Phillips 66 - Lake Charles	Loading docks		
220412_MA05	8	14	42	10	<0	Phillips 66 - Lake Charles	Loading docks		
220412_MA06	5	11	8	7	<0	Phillips 66 - Lake Charles	Loading docks		
220412_MA07	7	14	36	12	<0	Phillips 66 - Lake Charles	Loading docks		
220412_MA08	9	18	29	11	<0	Phillips 66 - Lake Charles	Loading docks	AED MOV_0141	
220412_MA09	10	14	85	7	19	Phillips 66 - Lake Charles	Truck loading rack		
220412_MA10	6	13	50	13	13	Phillips 66 - Lake Charles	Truck loading rack		
220412_MA11	9	19	42	6	50	Phillips 66 - Lake Charles	Asphalt tanks		
220412_MA12	13	26	38	8	127	Phillips 66 - Lake Charles	Asphalt tanks		
220412_MA13	6	15	45	5	<0	Phillips 66 - Lake Charles	Tank 2001	NEIC MOV_0184	
220412_MA14	15	29	60	<0	<0	Phillips 66 - Lake Charles	Asphalt tanks		
220412_MA15	12	29	77	<0	11	Phillips 66 - Lake Charles	Asphalt tanks		
220412_MA16	24	32	94	<0	24	Phillips 66 - Lake Charles	Asphalt tanks		
220412_MA17	10	26	61	<0	<0	Phillips 66 - Lake Charles	Asphalt tanks		
220412_MA18	16	40	97	<0	595	Phillips 66 - Lake Charles	Tank 2001		
220412_MA19	11	34	86	<0	27	Phillips 66 - Lake Charles	WWTP		
220412_MA20	17	36	84	<0	<0	Phillips 66 - Lake Charles	WWTP		
220412_MA21	16	35	106	<0	34	Phillips 66 - Lake Charles	Tank farm		
220412_MA22	16	39	121	<0	18	Phillips 66 - Lake Charles	Tank farm		
220412_MA23	14	32	107	<0	2	Phillips 66 - Lake Charles	Tank farm		
220412_MA24	12	51	145	<0	576	Phillips 66 - Lake Charles	Tank 82		NEIC 521; ORD 12307
220412_MA25	17	40	95	<0	49	Phillips 66 - Lake Charles	Tank 338		
220412_MA26	14	46	92	<0	9	Phillips 66 - Lake Charles	Tank farm		
220412_MA27	14	42	119	<0	70	Phillips 66 - Lake Charles	Tank farm		
220412_MA28	19	39	100	<0	169	Phillips 66 - Lake Charles	Tank farm	NEIC MOV_0185	
220412_MA29	18	34	110	<0	59	Phillips 66 - Lake Charles	Asphalt tanks		
220412_MA30	15	30	85	<0	9	Phillips 66 - Lake Charles	Asphalt tanks		
220412_MA31	17	36	99	<0	56	Phillips 66 - Lake Charles	Asphalt tanks		
220412_MA32	13	31	86	<0	<0	Phillips 66 - Lake Charles	Asphalt tanks		
220412_MA33	14	35	127	<0	<0	Phillips 66 - Lake Charles	Excel paralubes		
220412_MA34	15	36	93	<0	<0	Phillips 66 - Lake Charles	Excel paralubes		
220412_MA35	11	33	121	<0	<0	Phillips 66 - Lake Charles	Excel paralubes		
220412_MA36	9	42	94	<0	<0	Phillips 66 - Lake Charles	Excel paralubes		
220412_MA37	15	29	102	<0	<0	Phillips 66 - Lake Charles	Excel paralubes		
220412_MA38	18	38	100	<0	<0	Phillips 66 - Lake Charles	Excel paralubes		

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220412_MA39	17	45	103	<0	69	Phillips 66 - Lake Charles	Excel paralubes		
220412_MA40	15	35	83	<0	<0	Phillips 66 - Lake Charles			
220412_MA41	11	37	111	<0	71	Phillips 66 - Lake Charles	Downwind from Tank 2001		NEIC 3116; ORD 12151
220412_MA42	15	35	103	<0	12				
220412_MA43	12	34	88	<0	<0				
220412_MA44	15	36	101	3	4				
220412_MA45	15	28	91	10	<0				
220412_MA46	7	12	44	10	<0				
220412_MA47	33	18	51	12	<0	Phillips 66 Gulf Coast Plant			NEIC 9497; ORD 11686
220412_MA48	19	13	26	9	<0				
220412_MA49	15	14	54	12	<0				
220412_MA50	9	13	49	9	<0				
220412_MA51	8	18	31	10	98	Citgo			
220412_MA52	9	15	55	11	<0				
220413_MA01	8	4	35	19	113				
220413_MA02	7	1	31	16	<0	LOTTE	MEG Unit		
220413_MA03	7	-1	20	18	<0	LOTTE	MEG Unit		
220413_MA04	3	-2	18	13	<0	LOTTE	MEG Unit		
220413_MA05	4	0	24	13	<0	LOTTE	MEG Unit		
220413_MA06	9	1	37	16	6	LOTTE	MEG Unit		
220413_MA07	7	4	24	14	<0	LOTTE	MEG Unit		
220413_MA08	8	12	24	14	<0	LOTTE	MEG Unit		
220413_MA09	8	2	65	11	<0	LOTTE	MEG Unit		ORD 11678
220413_MA10	27	7	97	9	17	LOTTE	MEG Unit		
220413_MA11	12	16	62	9	<0	LOTTE	MEG Unit		
220413_MA12	66	12	79	9	65	LOTTE	Tank T-1807		NEIC 4621; ORD 12306
220413_MA13	51	10	62	5	26	LOTTE			
220413_MA14	8	7	60	3	<0	LOTTE	Acetaldehyde thermal oxidizer		
220413_MA15	8	2	38	5	<0	LOTTE	Acetaldehyde thermal oxidizer		
220413_MA16	10	10	89	7	<0	LOTTE	Acetaldehyde thermal oxidizer		NEIC 4609; ORD 12171
220413_MA17	58	13	62	7	65	LOTTE	WWTP		
220413_MA18	12	11	71	3	5	LOTTE	Cracker/ethylene plant		
220413_MA19	9	8	57	6	<0	LOTTE	Ethylene plant		
220413_MA20	76	13	47	5	140	LOTTE	WWTP		
220413_MA21	108	16	83	6	180	LOTTE	WWTP		
220413_MA22	13	12	87	<0	<0	LOTTE	WWTP		
220413_MA23	10	20	112	3	145	Westlake - South			
220413_MA24	8	25	131	<0	227	Westlake - South			
220413_MA25	9	17	107	<0	164	Westlake - South	WLCS		
220413_MA26	13	28	137	<0	724*	Westlake - South	WLCS		
220413_MA27	6	32	125	<0	629	Westlake - South	WLCS		
220413_MA28	14	20	124	<0	500	Westlake - South	WLCS		
220413_MA29	10	20	117	<0	590	Westlake - South	WLCS		
220413_MA30	9	27	151	<0	519	Westlake - South	WLCS		
220413_MA31	12	17	152	<0	409	Westlake - South	WLCS		
220413_MA32	13	23	164	<0	<0	Westlake - South	WLCS		

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220413_MA33	11	27	147	<0	<0	Westlake - South	WLCS		
220413_MA34	10	28	83	<0	<0	Westlake - South	WLCS		
220413_MA35	9	25	152	<0	<0	Westlake - South	WLCS		
220413_MA36	10	42	157	<0	<0	Westlake - South	WLCS		
220413_MA37	15	21	140	<0	509	Westlake - South	TCE control room		ORD 12137
220413_MA38	18	23	129	<0	329	Westlake - South	TCE control room		
220413_MA39	16	24	121	<0	<0	Westlake - South			
220413_MA40	7	22	108	<0	<0	Westlake - South	Sabine water treatment		
220413_MA41	15	18	98	<0	<0	Westlake - South	Sabine water treatment		
220413_MA42	16	29	153	<0	<0	Westlake - South	Powerhouse C	NEIC MOV_0187; MOV_0188	ORD 12148
220413_MA43	8	21	132	<0	<0	Westlake - South			
220413_MA44	10	10	84	<0	5	Westlake - South			
220413_MA45	14	21	97	2	729	Westlake - South	EOC plant		
220413_MA46	9	19	102	<0	36	Westlake - South	WLCS		
220413_MA47	10	20	84	<0	124	Westlake - South	EOC plant		
220413_MA48	9	13	72	<0	1,494	Westlake - South	WLCS		
220413_MA49	11	13	107	1	330	Westlake - South	WLCS		
220413_MA50	8	14	123	<0	585	Westlake - South	WLCS		
220413_MA51	10	19	99	1	337	Westlake - South	WLCS		
220413_MA52	7	16	110	5	34				
220413_MA53	6	13	84	7	<0				
220413_MA54	7	11	75	15	<0				
220414_MA01	13	15	53	17	92				
220414_MA02	8	17	32	4	56	Westlake - North	Vinyl furnaces		
220414_MA03	9	19	10	4	90	Westlake - North	Vinyl furnaces		
220414_MA04	8	12	39	4	89	Westlake - North	Vinyl/EOC plant		
220414_MA05	7	9	7	4	24	Westlake - North	Thermal oxidizer		
220414_MA06	9	13	29	6	42	Westlake - North	Thermal oxidizer		
220414_MA07	6	10	21	2	44	Westlake - North	Thermal oxidizer		
220414_MA08	9	14	31	5	37	Westlake - North	Thermal oxidizer		
220414_MA09	6	6	7	7	32	Westlake - North	Thermal oxidizer		
220414_MA10	5	7	10	1	28	Westlake - North	Vinyl/EOC plant		
220414_MA11	8	14	38	7	43	Westlake - North	Vinyl/EOC plant		
220414_MA12	9	13	31	7	124	Westlake - North	Vinyl/EOC plant		
220414_MA13	8	9	21	8	103	near Arch Chem			
220414_MA14	9	13	23	6	102	near Arch Chem			
220414_MA15	7	10	24	4	76				
220414_MA16	13	13	49	9	255				
220414_MA17	8	11	13	4	130	Citgo	Loading rack		
220414_MA18	6	13	<0	0	69	Citgo	Loading rack		
220414_MA19	9	28	17	8	1,065	Citgo	Loading rack		
220414_MA20	9	20	12	2	674	Citgo	Loading rack		
220414_MA21	7	22	<0	6	361	Citgo	Loading rack		
220414_MA22	8	12	38	4	292	Citgo	Loading rack		
220414_MA23	6	9	<0	6	305	Citgo	Loading rack	NEIC MOV_0189	
220414_MA24	7	5	9	7	69	Citgo	Tank farm		
220414_MA25	11	14	19	9	286	Citgo	Tank farm		
220414_MA26	11	14	12	5	103	Citgo	Tank farm		
220414_MA27	10	17	24	5	117	Citgo	Tank farm		

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220414_MA28	4	10	11	7	87	Citgo	Tank farm		
220414_MA29	8	11	16	6	106	Citgo	Tank farm		
220414_MA30	8	14	9	11	130	Citgo	Tank farm		
220414_MA31	7	9	9	6	162	Citgo	Tank farm		
220414_MA32	8	8	11	11	119	Citgo	Sulfur plant		
220414_MA33	5	9	29	7	102	Citgo	Tank 2		
220414_MA34	13	118	25	9	1,026	Citgo	Tank 2		
220414_MA35	10	9	15	7	10	Citgo	Marine loading dock		
220414_MA36	15	165	22	8	1,594	Citgo	Marine loading dock		NEIC 4605
220414_MA37	10	39	31	10	220	Citgo	Marine loading dock	NEIC MOV_0191	
220414_MA38	6	12	18	10	238	Citgo	Tank 2		
220414_MA39	7	10	6	8	75	Citgo	Tank T-380		
220414_MA40	14	11	2	6	198	Citgo	WWTP		
220414_MA41	9	5	29	8	30	Citgo	WWTP		
220414_MA42	22	48	35	11	1,099	Citgo	WWTP	AED MOV_0167	NEIC 10007
220414_MA43	8	12	9	6	280	Citgo	WWTP		
220414_MA44	9	10	2	7	211	Citgo	WWTP		
220414_MA45	7	4	8	6	44	Citgo	WWTP		
220414_MA46	11	10	10	8	240	Citgo	WWTP		
220414_MA47	9	7	<0	6	63	Citgo	WWTP		
220414_MA48	8	5	1	7	71	Citgo	WWTP		
220414_MA49	9	11	9	7	260	Citgo	Tank 55		
220414_MA50	9	11	5	6	87	Citgo	Tank 55		
220414_MA51	8	24	35	10	446	Citgo	Tank 55	NEIC MOV_0192	
220414_MA52	8	15	41	7	64				
220415_MA01	6	1	73	10	132	Marathon - Garyville	Alky unit		
220415_MA02	3	0	73	8	107	Marathon - Garyville	WWTP		
220415_MA03	23	35	72	12	763*	Marathon - Garyville	API oil/water separator	NEIC MOV_0193; NEIC MOV_0194	NEIC 10009
220415_MA04	10	17	58	11	552	Marathon - Garyville	WWTP		
220415_MA05	21	38	66	12	992	Marathon - Garyville	Tank farm		
220415_MA06	11	14	66	12	664	Marathon - Garyville	Tank farm		
220415_MA07	17	34	78	10	945	Marathon - Garyville	Tank 300-19		NEIC 9490; ORD 12158
220415_MA08	16	27	65	10	813	Marathon - Garyville	Tank farm	NEIC MOV_0195	
220415_MA09	6	2	46	10	108	Marathon - Garyville	Tank farm		
220415_MA10	5	16	64	9	263	Marathon - Garyville	Tank farm		
220415_MA11	8	7	80	10	369	Marathon - Garyville	Tank farm		
220415_MA12	11	28	60	10	1,542*	Marathon - Garyville	Tank farm		
220415_MA13	14	79	67	12	1,568	Marathon - Garyville	Tank farm		
220415_MA14	8	31	71	9	462	Marathon - Garyville	Tank farm		
220415_MA15	11	50	65	14	915	Marathon - Garyville	Tank farm		
220415_MA16	10	25	69	13	787	Marathon - Garyville	Tank farm		
220415_MA17	14	16	52	11	758	Marathon - Garyville	Tank farm		
220415_MA18	11	60	75	12	1,278	Marathon - Garyville	Tank farm		
220415_MA19	7	32	84	11	374	Marathon - Garyville	Tank farm		
220415_MA20	6	7	78	9	285	Marathon - Garyville	Tank farm		
220415_MA21	7	10	95	9	493	Marathon - Garyville	Tank farm		
220415_MA22	6	8	68	10	368	Marathon - Garyville	Tank farm		
220415_MA23	4	4	45	10	381	Marathon - Garyville	Tank farm	NEIC MOV_0196	
220415_MA24	6	2	75	12	610	Marathon - Garyville	Tank farm		
220415_MA25	10	10	80	13	710	Marathon - Garyville	Tank farm		

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220415_MA26	6	6	74	9	647	Marathon - Garyville	Tank farm		
220415_MA27	10	13	67	11	840	Marathon - Garyville	Tank farm		
220415_MA28	6	20	94	11	666	Marathon - Garyville	Tank farm		
220415_MA29	10	5	71	10	585	Marathon - Garyville	Tank farm		
220415_MA30	4	<0	53	11	95	Marathon - Garyville	Tank farm		
220415_MA31	8	14	106	12	1,048	Marathon - Garyville	Tank farm		
220415_MA32	9	12	85	13	883	Marathon - Garyville	Tank farm		
220415_MA33	9	<0	70	11	120	Marathon - Garyville	Tank farm		
220415_MA34	3	<0	56	11	118	Marathon - Garyville	Marine vapor recovery combustors		
220415_MA35	5	43	79	10	568	Marathon - Garyville	Marine vapor recovery combustors		
220415_MA36	4	2	62	13	416	Marathon - Garyville	Tank farm		
220415_MA37	6	<0	55	11	87	Marathon - Garyville			
220415_MA38	3	<0	57	12	100	Marathon - Garyville			
220416_MA01	22	20	87	33	116				
220416_MA02	17	26	66	12	102				
220416_MA03	16	24	72	12	82	near Denka/DuPont			
220416_MA04	21	22	36	10	81	near Denka/DuPont			
220416_MA05	15	22	58	10	89	near Denka/DuPont			
220416_MA06	13	27	45	14	93	near Denka/DuPont			
220416_MA07	14	19	16	12	92	near Denka/DuPont			
220416_MA08	15	18	47	22	88	near Denka/DuPont			
220416_MA09	20	20	53	14	136	near Denka/DuPont			
220416_MA10	14	16	26	13	91	near Denka/DuPont			
220416_MA11	15	18	26	18	89	near Denka/DuPont			
220416_MA13	15	6	20	15	86	near Denka/DuPont			ORD 11669
220416_MA13	16	11	30	21	91	near Denka/DuPont			
220416_MA14	15	15	44	18	90	near Denka/DuPont			
220416_MA15	16	17	49	19	101	near Denka/DuPont			
220416_MA16	13	12	32	17	110	near Denka/DuPont			
220416_MA17	20	14	49	17	110	near Denka/DuPont			
220416_MA18	16	26	71	16	183	near DPC Enterprises			
220416_MA19	13	21	80	10	136	near Evonik - Reserve			
220416_MA20	16	21	65	9	131	near Evonik - Reserve			
220416_MA21	18	20	73	12	134	near Evonik - Reserve			
220416_MA22	16	23	56	9	109	near Evonik - Reserve			
220416_MA23	12	29	49	9	178	near Evonik - Reserve			
220416_MA24	17	26	81	9	138	near Evonik - Reserve			NEIC 3066; ORD 11680
220416_MA25	13	23	59	7	121	downwind fom Evonik - Reserve			
220416_MA26	14	19	81	3	109	downwind fom Evonik - Reserve			
220416_MA27	14	16	78	8	123	downwind fom Evonik - Reserve			
220416_MA28	15	28	69	4	112	downwind fom Evonik - Reserve			
220416_MA29	20	24	86	6	97	near Evonik/Nalco			
220416_MA30	10	15	94	3	73	near Evonik/Nalco			
220416_MA31	13	19	53	1	65	near Evonik/Nalco			
220416_MA32	15	17	57	<0	68	near Evonik/Nalco			
220416_MA33	16	22	87	1	72	near Evonik/Nalco			

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220416_MA34	20	34	59	5	123	near Evonik/Nalco			
220416_MA35	11	30	75	4	79	near Evonik/Nalco			
220416_MA36	20	25	100	5	62	near Evonik/Nalco			
220416_MA37	14	27	90	6	62	near Evonik/Nalco			
220416_MA38	15	21	57	4	59	near Evonik/Nalco			
220416_MA39	13	24	87	12	64	near Louisiana Refining			
220416_MA40	16	30	92	11	77				
220416_MA41	14	11	47	16	81				
220416_MA42	13	14	11	17	75				
220416_MA43	13	15	24	18	108				
220416_MA44	15	11	19	24	123				
220416_MA45	13	8	3	27	76				
220416_MA46	11	8	<0	27	221				
220416_MA47	14	5	<0	25	92				
220416_MA48	14	5	<0	29	77				
220418_MA01	12	4	<0	28	<0				
220418_MA02	13	8	29	27	22				
220418_MA03	9	4	<0	23	66	Evonik - Reserve	Warehouse		
220418_MA04	16	1	<0	28	73	Evonik - Reserve	AR process		
220418_MA05	9	<0	<0	27	111	Evonik - Reserve	Scrubber stack		
220418_MA06	9	<0	<0	29	70	Evonik - Reserve	Scrubber stack		
220418_MA07	10	1	<0	28	71	Evonik - Reserve	Scrubber stack		
220418_MA08	9	0	<0	26	63	Evonik - Reserve	near reactors		
220418_MA09	9	1	<0	28	68	Evonik - Reserve	near reactors		
220418_MA10	9	0	<0	27	54	Evonik - Reserve	near EO unloading		
220418_MA11	11	<0	<0	28	58	Evonik - Reserve	near control room building		
220418_MA13	10	<0	<0	29	70	Evonik - Reserve	near control room building		NEIC 4606; ORD 12172
220418_MA13	10	<0	5	28	84	Evonik - Reserve	Scrubber stack		
220418_MA14	8	<0	9	27	67	Evonik - Reserve	Scrubber stack	AED MOV_0170	
220418_MA15	10	<0	<0	25	61	near Evonik - Reserve			
220418_MA16	5	<0	<0	29	58	near Evonik - Reserve			
220418_MA17	10	<0	20	29	64	near Evonik - Reserve			
220418_MA18	12	<0	<0	27	57	near Evonik - Reserve			
220418_MA19	10	<0	<0	29	125	near Stericycle			
220418_MA20	11	<0	<0	28	84	near Evonik - Reserve			
220418_MA21	4	<0	<0	30	46	near Evonik - Reserve			
220418_MA22	10	<0	<0	27	53	near Evonik - Reserve			
220418_MA23	11	<0	<0	28	59	near Evonik - Reserve			
220418_MA24	8	<0	<0	31	52	near Evonik - Reserve			
220418_MA25	8	<0	<0	29	50	near Evonik - Reserve			
220418_MA26	12	<0	<0	29	52	near Evonik - Reserve			
220418_MA27	8	<0	<0	28	44				
220418_MA28	12	0	1	29	75				
220418_MA29	12	<0	2	31	56				
220418_MA30	11	<0	<0	31	65				
220418_MA31	7	<0	1	28	43				
220418_MA32	10	0	13	28	53	near NuStar - St. James			
220418_MA33	7	<0	<0	26	40	near NuStar - St. James			
220418_MA34	9	1	<0	30	62	near NuStar - St. James			
220418_MA35	12	<0	<0	29	55	near NuStar - St. James			

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220418_MA36	9	<0	<0	29	70	near NuStar - St. James			
220418_MA37	8	7	3	31	96	near NuStar - St. James			
220418_MA38	10	2	1	27	47	near NuStar - St. James			
220418_MA39	10	<0	<0	28	75	NuStar - St. James			
220418_MA40	13	<0	<0	30	148	NuStar - St. James			
220418_MA41	9	<0	3	30	123	NuStar - St. James			
220418_MA42	11	3	<0	29	100	NuStar - St. James			
220418_MA43	11	<0	<0	29	283	NuStar - St. James			
220418_MA44	9	<0	<0	27	147	NuStar - St. James	downwind of Tank 25		
220418_MA45	9	<0	<0	27	67	NuStar - St. James	downwind of Tank 25		
220418_MA46	7	<0	<0	27	70	NuStar - St. James	downwind of Tank 25		
220418_MA47	8	<0	<0	27	250	NuStar - St. James	downwind of Tank 25		
220418_MA48	11	<0	<0	31	219	NuStar - St. James	downwind of Tank 25		
220418_MA49	5	<0	<0	26	35	NuStar - St. James		AED MOV_0172	
220418_MA50	8	<0	<0	26	63	NuStar - St. James	near Tank 25		
220418_MA51	12	<0	<0	29	118	NuStar - St. James	Tank 6	AED MOV_0174; NEIC MOV_0204	
220418_MA52	20	0	0	27	58				
220418_MA53	21	<0	<0	27	48	downwind from Americas Styrenics			
220418_MA54	17	<0	<0	31	56	downwind from Americas Styrenics			NEIC 527
220418_MA55	16	<0	<0	31	49	downwind from Americas Styrenics			
220418_MA56	43	3	<0	28	104	downwind from Americas Styrenics			NEIC 535
220418_MA57	42	<0	<0	28	86	downwind from Americas Styrenics			
220418_MA58	12	<0	<0	29	46	downwind from Americas Styrenics			
220418_MA59	10	<0	3	32	42				
220418_MA60	9	2	<0	27	35				
220418_MA61	11	2	15	31	58				
220418_MA62	11	<0	<0	29	54				
220418_MA63	11	<0	<0	27	32				
220418_MA64	11	<0	<0	28	31	near Evonik - Reserve			
220418_MA65	13	<0	<0	28	29	near Evonik - Reserve			
220418_MA66	11	<0	<0	28	44	near Evonik - Reserve			
220418_MA67	5	<0	<0	26	26	near Evonik - Reserve			
220418_MA68	11	<0	<0	26	46	downwind of Evonik - Reserve			
220418_MA69	11	<0	<0	30	50	downwind of Evonik - Reserve			
220418_MA70	6	<0	<0	29	46	downwind of Evonik - Reserve			
220418_MA71	11	<0	<0	26	35	downwind of Evonik - Reserve			
220418_MA72	12	2	<0	30	42	downwind of Evonik - Reserve			
220418_MA73	10	<0	6	29	45	downwind of Evonik - Reserve			
220418_MA74	11	0	10	30	51				
220419_MA01	8	6	32	24	53				
220419_MA02	8	2	22	22	55				

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220419_MA03	7	<0	24	27	26				
220419_MA04	7	<0	<0	27	49	Union Carbide - St. Charles	near EXP plant		
220419_MA05	9	<0	10	26	35	Union Carbide - St. Charles	near railyard		
220419_MA06	9	<0	<0	26	27	Union Carbide - St. Charles	near railyard		
220419_MA07	8	<0	<0	25	29	Union Carbide - St. Charles	near butanol plant		
220419_MA08	8	<0	<0	25	34	Union Carbide - St. Charles			
220419_MA09	6	<0	<0	26	20	Union Carbide - St. Charles	near SPU		
220419_MA10	4	<0	<0	23	16	Union Carbide - St. Charles	near SPU		
220419_MA11	9	<0	14	26	28	Union Carbide - St. Charles	near storage tanks		
220419_MA12	15	<0	7	27	52	Union Carbide - St. Charles	near storage tanks		
220419_MA13	36	<0	<0	26	104	Union Carbide - St. Charles	Tank 1311		
220419_MA14	24	<0	0	26	67	Union Carbide - St. Charles	Tank 1301		
220419_MA15	32	2	9	27	148	Union Carbide - St. Charles	Tank 1301		
220419_MA16	13	<0	9	26	45	Union Carbide - St. Charles	Tank 1301		
220419_MA17	9	<0	<0	26	31	Union Carbide - St. Charles	Railcar loading		NEIC 00278; ORD 11677
220419_MA18	5	<0	<0	23	18	Union Carbide - St. Charles	SPU/railcar loading		
220419_MA19	7	<0	<0	25	24	Union Carbide - St. Charles	SPU/railcar loading		
220419_MA20	8	<0	<0	26	83	Union Carbide - St. Charles	WWTP		
220419_MA21	3	<0	<0	23	18	Union Carbide - St. Charles	WWTP		
220419_MA22	10	<0	1	28	132	Union Carbide - St. Charles	WWTP		
220419_MA23	8	0	<0	27	54	Union Carbide - St. Charles	Acrylics unit		NEIC 10018; ORD 12311
220419_MA24	4	<0	<0	27	21	Union Carbide - St. Charles	WWTP		
220419_MA25	5	<0	<0	22	30	Union Carbide - St. Charles	WWTP		
220419_MA26	9	<0	9	26	37	Union Carbide - St. Charles	Tank area		
220419_MA27	9	<0	<0	27	23	Union Carbide - St. Charles	Tank area		
220419_MA28	5	<0	<0	26	20	Union Carbide - St. Charles	Tank area		
220419_MA29	6	<0	1	26	68	Union Carbide - St. Charles	Tank area		
220419_MA30	7	<0	<0	24	21	Union Carbide - St. Charles	HO/olefins		
220419_MA31	5	3	7	20	58	Union Carbide - St. Charles	WWTP		
220419_MA32	5	<0	<0	20	27	Union Carbide - St. Charles	WWTP		
220419_MA33	6	<0	2	21	254	Union Carbide - St. Charles	WWTP		
220419_MA34	6	3	10	24	165	Union Carbide - St. Charles	WWTP		
220419_MA35	10	1	25	23	239	Union Carbide - St. Charles	WWTP		NEIC 00118; ORD 12153
220419_MA36	5	2	<0	23	148	Union Carbide - St. Charles	WWTP		
220419_MA37	6	1	<0	23	23	Union Carbide - St. Charles	Acrylics unit		
220419_MA38	8	<0	<0	25	241	Union Carbide - St. Charles	Acrylics unit		
220419_MA39	6	<0	<0	20	289	Union Carbide - St. Charles	Acrylics unit		
220419_MA40	8	<0	<0	24	329	Union Carbide - St. Charles	Acrylics unit		
220419_MA41	7	0	<0	25	39	Union Carbide - St. Charles	Acrylics unit		
220419_MA42	6	<0	<0	25	26	Union Carbide - St. Charles	Acrylics unit		
220419_MA43	6	<0	<0	25	25	Union Carbide - St. Charles	SPU unit		
220419_MA44	6	<0	<0	28	26	Union Carbide - St. Charles	SPU unit		
220419_MA45	6	<0	<0	26	40	Union Carbide - St. Charles	SPU unit		
220419_MA46	8	<0	<0	24	26	Union Carbide - St. Charles	SPU unit		
220419_MA47	7	<0	<0	25	29	Union Carbide - St. Charles	SPU unit		
220419_MA48	5	1	<0	25	48	Union Carbide - St. Charles	SPU unit		
220419_MA49	9	3	1	23	27	Union Carbide - St. Charles			
220419_MA50	9	<0	3	25	373				
220420_MA01	11	13	58	7	33				

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220420_MA02	11	10	64	6	58				
220420_MA03	8	7	46	7	75	Union Carbide - St. Charles	Olefins/HC plant		
220420_MA04	11	9	57	9	136	Union Carbide - St. Charles	Olefins/HC plant		
220420_MA05	8	3	15	7	135	Union Carbide - St. Charles	Olefins #2 plant		
220420_MA06	8	2	26	7	74	Union Carbide - St. Charles	Olefins #2 plant		
220420_MA07	9	5	40	8	103	Union Carbide - St. Charles	Olefins #2 plant		
220420_MA08	10	3	41	9	183	Union Carbide - St. Charles	Olefins #2 plant		
220420_MA08	10	7	50	6	134	Union Carbide - St. Charles	Olefins #2 plant		NEIC 4602
220420_MA10	11	6	30	10	837	Union Carbide - St. Charles	Olefins #2 plant		
220420_MA11	12	9	43	9	299	Union Carbide - St. Charles	Olefins #2 plant		ORD 12156
220420_MA12	12	8	29	10	144	Union Carbide - St. Charles	Olefins #1 plant		
220420_MA13	9	3	29	5	51	Union Carbide - St. Charles	Olefins #1 plant		
220420_MA14	13	9	44	10	86	Union Carbide - St. Charles	Olefins #1 plant		
220420_MA15	13	9	38	12	178	Union Carbide - St. Charles	Olefins #1 plant		
220420_MA16	11	4	39	11	79	Union Carbide - St. Charles	Oxides plant		
220420_MA17	6	<0	20	11	561	Union Carbide - St. Charles	Oxides plant		
220420_MA18	11	4	30	9	377	Union Carbide - St. Charles	Oxides plant		
220420_MA19	9	7	46	7	289	Union Carbide - St. Charles	Oxides plant		
220420_MA20	10	5	36	7	140	Union Carbide - St. Charles	Oxides plant		
220420_MA21	7	7	20	10	61	Union Carbide - St. Charles	Amines		
220420_MA22	6	7	16	7	83	Union Carbide - St. Charles	Amines		
220420_MA23	10	10	18	8	108	Union Carbide - St. Charles	Amines		
220420_MA24	6	2	37	8	40	Union Carbide - St. Charles	Amines/EO mound		
220420_MA25	10	0	42	9	43	Union Carbide - St. Charles	EO mound		
220420_MA26	8	3	43	9	41	Union Carbide - St. Charles	EO mound		
220420_MA27	6	6	35	7	40	Union Carbide - St. Charles	EO mound	AED MOV_0175	
220420_MA28	9	4	26	8	44	Union Carbide - St. Charles	EO mound		
220420_MA29	6	<0	1	3	32	Union Carbide - St. Charles	EO mound		
220420_MA30	7	2	33	9	42	Union Carbide - St. Charles	EO mound		
220420_MA31	12	12	54	11	83	Union Carbide - St. Charles	EO mound/admin		
220420_MA32	9	7	46	8	44				
220420_MA33	8	9	42	9	82				
220420_MA34	10	7	40	11	45	MPLX - Mt. Airy			
220420_MA35	5	5	30	10	44	MPLX - Mt. Airy			
220420_MA36	9	6	17	11	57	MPLX - Mt. Airy			
220420_MA37	9	2	26	10	58	MPLX - Mt. Airy			
220420_MA38	10	3	31	10	59	MPLX - Mt. Airy			
220420_MA39	7	2	47	7	52	MPLX - Mt. Airy			
220420_MA40	7	1	19	8	48	MPLX - Mt. Airy			
220420_MA41	10	2	29	10	71	MPLX - Mt. Airy			
220420_MA42	7	6	44	10	67	MPLX - Mt. Airy			
220420_MA43	6	0	27	7	119	MPLX - Mt. Airy	Tank 150-2		
220420_MA44	10	6	46	12	125	MPLX - Mt. Airy	Tank 150-2		
220420_MA45	9	5	45	10	99	MPLX - Mt. Airy	Tank 150-2		
220420_MA46	9	1	42	11	65	MPLX - Mt. Airy	Tank 150-2		
220420_MA47	8	5	35	7	75	MPLX - Mt. Airy	Tank 150-2		
220420_MA48	9	4	50	9	66	MPLX - Mt. Airy	Tank 150-2		
220420_MA49	9	5	32	11	51				
220420_MA50	10	8	61	8	83				
220421_MA01	10	16	59	18	<0				
220421_MA02	10	0	85	7	<0				

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220421_MA03	9	17	20	3	<0				
220421_MA04	8	43	101	<0	88	Occidental - Convent			
220421_MA05	9	43	49	<0	74	Occidental - Convent	EDC tanks		
220421_MA06	7	35	82	<0	73	Occidental - Convent	EDC tanks		
220421_MA07	9	32	83	<0	67	Occidental - Convent	EDC tanks		
220421_MA08	7	38	87	<0	73	Occidental - Convent	EDC tanks		
220421_MA09	15	36	103	<0	80	Occidental - Convent	EDC tanks\Plant 1		
220421_MA10	12	45	113	<0	84	Occidental - Convent	Plant 1		
220421_MA11	11	33	115	<0	109	Occidental - Convent			
220421_MA12	11	37	100	<0	77	Occidental - Convent			
220421_MA13	11	40	106	<0	79	near Mosaic			
220421_MA14	18	38	108	<0	329	going to Plains Marketing - St. James			
220421_MA15	13	22	96	<0	292	near NuStar - St. James			
220421_MA16	24	36	90	6	2,319	near NuStar - St. James		NEIC MOV_0205	
220421_MA17	11	16	16	4	136				
220421_MA18	9	16	12	3	66				
220421_MA19	8	17	19	0	92	Plains Marketing - St. James			
220421_MA20	10	20	38	1	77	Plains Marketing - St. James			
220421_MA21	12	16	26	<0	115	Plains Marketing - St. James			
220421_MA22	7	18	38	1	150	Plains Marketing - St. James			
220421_MA23	7	20	20	3	62	Plains Marketing - St. James			
220421_MA24	7	18	27	2	108	Plains Marketing - St. James			
220421_MA25	11	22	43	2	304	Plains Marketing - St. James	Tank 5210		
220421_MA26	7	24	42	<0	108	Plains Marketing - St. James			
220421_MA27	7	23	21	<0	61	Plains Marketing - St. James			
220421_MA28	7	20	37	3	70	Plains Marketing - St. James			
220421_MA29	7	18	33	2	85	Plains Marketing - St. James			
220421_MA30	8	20	41	0	303	going to Americas Styrenics - St. James			
220421_MA31	1	16	9	<0	51	going to Americas Styrenics - St. James			
220421_MA32	200	130	57	14	5,312*	going to Americas Styrenics - St. James		NEIC MOV_0206	NEIC 3073; ORD 12161
220421_MA33	31	29	27	3	2,177	going to Americas Styrenics - St. James			
220421_MA34	33	25	44	<0	106	Americas Styrenics - St. James	Downwind of ME3100		
220421_MA35	236	17	42	<0	578	Americas Styrenics - St. James			
220421_MA36	470	21	38	<0	1,119	Americas Styrenics - St. James	SM2 styrene plant		
220421_MA37	1178	19	59	8	2,891	Americas Styrenics - St. James	SM2 styrene plant		
220421_MA37	1138	15	50	9	2,752	Americas Styrenics - St. James	SM2 styrene plant		NEIC 4618; ORD 12159
220421_MA39	10132	308	30	57	5,312	Americas Styrenics - St. James	SM2 styrene plant		NEIC 00279
220421_MA40	623	13	45	1	1,592	Americas Styrenics - St. James	SM2 styrene plant		
220421_MA41	862	20	62	6	3,532	Americas Styrenics - St. James	SM2 styrene plant/cooling tower		
220421_MA42	117	20	21	<0	318	Americas Styrenics - St. James	Cooling tower		

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220421_MA43	275	20	22	<0	725	Americas Styrenics - St. James	Cooling tower		
220421_MA44	96	23	36	1	305	Americas Styrenics - St. James	Cooling tower		
220421_MA45	169	25	13	1	418	Americas Styrenics - St. James	Cooling tower		
220421_MA46	25	21	<0	<0	111	Americas Styrenics - St. James	Cooling tower		
220421_MA47	95	17	7	<0	263	Americas Styrenics - St. James	Cooling tower		
220421_MA48	13	18	13	1	63	Americas Styrenics - St. James	Cooling tower/north tank farm		
220421_MA49	12	18	15	0	49	Americas Styrenics - St. James	North tank farm		
220421_MA50	190	80	<0	6	785	Americas Styrenics - St. James	DNBP		
220421_MA51	99	41	3	4	628	Americas Styrenics - St. James	DNBP		
220421_MA52	74	45	14	1	440	Americas Styrenics - St. James	DNBP		
220421_MA53	37	31	<0	1	235	Americas Styrenics - St. James	DNBP		
220421_MA54	204	97	20	6	930	Americas Styrenics - St. James	DNBP		NEIC 4601
220421_MA55	60	42	34	4	277	Americas Styrenics - St. James	Ethylbenzene	AED MOV_0179; AED MOV_0180; AED MOV_0181	
220421_MA56	11	20	28	2	58				
220421_MA57	11	21	35	5	36				
220422_MA01	9	3	51	20	107				
220422_MA02	17	34	193	<0	99	DuPont			
220422_MA03	16	44	152	<0	249	DuPont			
220422_MA04	14	31	174	<0	97	DuPont			
220422_MA05	18	32	188	<0	144	DuPont			
220422_MA06	11	36	193	<0	96	DuPont			
220422_MA07	13	19	156	<0	62	DuPont			
220422_MA08	16	37	179	<0	57	DuPont			
220422_MA09	13	33	178	<0	54	DuPont			
220422_MA10	12	27	179	<0	51	DuPont			
220422_MA11	19	39	176	<0	155	DuPont	near WWTP		NEIC 10008
220422_MA12	9	36	180	<0	67	DuPont	WWTP/chloroprene storage		
220422_MA13	16	26	183	<0	56	DuPont	Chloroprene storage		
220422_MA14	9	30	176	<0	52	DuPont	CD brine clarifier		
220422_MA15	15	25	176	<0	49	DuPont	Barrel storage yard		
220422_MA16	16	35	184	<0	76	DuPont	Poly building		
220422_MA17	14	32	132	<0	58	DuPont	Poly building		
220422_MA18	13	111	150	<0	201	Denka	West side of poly building		NEIC 519
220422_MA19	18	95	201	<0	315	Denka	Poly building		ORD 11675
220422_MA20	7	62	94	<0	187	Denka	Poly building/fininshing driers		

Map_ID	BEN	TOL	XYM	XYP	VOC	Facility Short Name	Process	FLIR	Canister
220422_MA21	6	92	144	<0	222	Denka	Poly building/fininshing driers		
220422_MA22	9	20	108	<0	41	Denka	Finishing driers/brine pit		
220422_MA23	9	42	122	<0	104	Denka	Brine pit		
220422_MA24	10	23	145	<0	59	Denka	Brine pit/admin bld		
220422_MA25	14	18	119	6	74				
220423_MA01	0	0	0	0	69				
220423_MA02	0	0	0	0	50				
220423_MA03	0	0	0	0	50				
220423_MA04	0	0	0	0	80	Nucor Steel - Louisiana			
220423_MA05	0	0	0	0	60	Nucor Steel - Louisiana	Fines blending		
220423_MA06	0	0	0	0	54	Nucor Steel - Louisiana	Fines blending		
220423_MA07	0	0	0	0	48	Nucor Steel - Louisiana	Ore yards		
220423_MA08	0	0	0	0	45	Nucor Steel - Louisiana	Ore yards		
220423_MA09	0	0	0	0	58	Nucor Steel - Louisiana	Ore yards		
220423_MA10	0	0	0	0	45	Nucor Steel - Louisiana	Ore yards		
220423_MA11	0	0	0	0	44	Nucor Steel - Louisiana	Admin		
220423_MA12	13	8	47	14	65				
220423_MA13	6	1	39	9	57	near Motiva/Shell			
220423_MA14	11	7	28	13	49	near Motiva/Shell			
220423_MA15	11	5	42	14	66				NEIC 3119; ORD 12173

Appendix F
Facilities Entered

VP1456E03
GMAP R6 Pollution Accountability Team FY2022
Calcasieu Parish, Louisiana
St. Charles Parish, Louisiana
St. James Parish, Louisiana
St. John the Baptist Parish, Louisiana

3 pages

Longitude	Latitude	County	Date	Facility Name (Facility Short Name)	FRS ID
-93.27563	30.24502	Calcasieu	4/11/2022	Louisiana Integrated Polyethylene Jv, Llc (Louisiana Integrated Polyethylene)	110070879384
-93.29370	30.25880	Calcasieu	4/11/2022	Sasol Chemicals USA LLC (Sasol)	110017418061
-93.27439	30.24216	Calcasieu	4/12/2022	Lake Charles Manufacturing Complex (Phillips 66 - Lake Charles)	110000539757
-93.30859	30.21419	Calcasieu	4/13/2022	LOTTE Chemical Louisiana LLC (LOTTE)	110070132818
-93.28623	30.23099	Calcasieu	4/13/2022	Westlake Petrochemical LP (Westlake - South)	110043973509
-93.28626	30.25309	Calcasieu	4/14/2022	Westlake Petrochemical LP (Westlake - North)	110043973509
-93.32405	30.18149	Calcasieu	4/14/2022	Citgo Petroleum Corp (Citgo)	110000597248
-90.59353	30.06132	St. John	4/15/2022	Marathon Petroleum Co LP - LA Refining Division - Garyville Refinery (Marathon - Garyville)	110041135580
-90.57818	30.07145	St. John	4/18/2022	Evonik Corp - Reserve Plant (Evonik - Reserve)	110017758381
-90.85700	30.02400	St. James	4/18/2022	NuStar Logistics LP - St. James Terminal (NuStar - St. James)	110007278908
-90.44370	29.98290	St. Charles	4/19/2022 - 4/20/2022	Union Carbide (Union Carbide - St. Charles)	110000597104
-90.64279	30.05606	St. John	4/20/2022	MPLX Terminals LLC (MPLX - Mt. Airy)	110024570739
-90.83084	30.05509	St. James	4/21/2022	Occidental Chemical Corporation Convent Plant (Occidental - Convent)	110000597328
-90.84000	30.00778	St. James	4/21/2022	Plains Marketing LP - St. James Terminal (Plains Marketing - St. James)	110022481777
-90.91600	30.08013	St. James	4/21/2022	Americas Styrenics LLC - St James Plant (Americas Styrenics - St. James)	110056954602
-90.52410	30.05890	St. John	4/22/2022	DuPont Pontchartrain Site (DuPont)	110000597131
-90.52429	30.05674	St. John	4/22/2022	Denka Performance Elastomer LLC (Denka)	110067396669
-90.86053	30.08131	St. James	4/23/2022	Nucor Steel Louisiana LLC (Nucor Steel - Louisiana)	110046325400

Facility Short Name	Organization	Company Contact		Title
		First Name	Last Name	
Louisiana Integrated Polyethylene	Louisiana Integrated Polyethylene	Beau	Mixont	Env. Specialist
Louisiana Integrated Polyethylene	Louisiana Integrated Polyethylene	Ranesha	Davis	LDAP Specialist
Sasol	Sasol	Allyson	Leger	Environmental Manager
Sasol	Sasol	Matthew	Todd	Env. Specialist
Sasol	BrandSafway	Ridry	Abate	LDAR
Phillips 66 - Lake Charles	Phillips 66 - Lake Charles	Erin	Strang	Env. Team Lead
Phillips 66 - Lake Charles	Phillips 66 - Lake Charles	Tricia	Ripp	Env. Specialist
Phillips 66 - Lake Charles	Phillips 66 - Lake Charles	Cassie	Thearis	Env. Specialist
Phillips 66 - Lake Charles	Phillips 66 - Lake Charles	John	Trasiewicz	Env. Specialist
Phillips 66 - Lake Charles	Phillips 66 - Lake Charles	Heath	Mouton	ERS
LOTTE	LOTTE	Kaili	Patterson	Env. Supervisor
LOTTE	LOTTE	Heather	Holbrook	Air Env. Coordinator
LOTTE	LOTTE	Andrew	Lavin	EHSS Manager
Westlake South	Westlake South	Don	Johnson	Env. Specialist
Westlake South	Westlake South	Paula	McCain	Env. Manager
Westlake North	Westlake North	Bob	Craft	Production Eng
Westlake North	Westlake North	Paula	McCain	Env. Manager
Westlake North	Westlake North	Sarah	Donahe	Production Supervisor
Citgo	Citgo	Gus	Fazzio	Operator
Citgo	Citgo	Phyllis	Holifield	Env. Manager
Marathon - Garyville	Marathon - Garyville	Jim	Manning	ESS Manager
Marathon - Garyville	Marathon - Garyville	Kelly	Hedges	Env. Supervisor
Marathon - Garyville	Marathon - Garyville	Paula	Bremer	Env. Professional
Evonik - Reserve	Evonik - Reserve	Jennifer	Sparks	
Evonik - Reserve	Evonik - Reserve	Brittany	Breaux	EHSS Manager
Evonik - Reserve	Evonik - Reserve	Jean	Marion	Site Manager
NuStar - St. James	NuStar - St. James	Jean	Zerinyue	GM Operation
NuStar - St. James	NuStar - St. James	Marcello	Cornejo	Terminal Manager
NuStar - St. James	NuStar - St. James	Brad	Roig	HSE
Union Carbide - St. Charles	EPA Region 5	Karina	Kuc	
Union Carbide - St. Charles	EPA Region 5	Victoria	Nelson	
Union Carbide - St. Charles	EPA Region 6	James	Haynes	
Union Carbide - St. Charles	Leverage	Charles		Air Specialist
Union Carbide - St. Charles	Union Carbide - St. Charles	Brenden	Chamban	Air Specialist
Union Carbide - St. Charles	Union Carbide - St. Charles	Breb	Dejeen	Fugitive Emission
Union Carbide - St. Charles	Leverage	Marian	Palmisano	Env. Tech
Union Carbide - St. Charles	Union Carbide - St. Charles	Jason	Oser	

Facility Short Name	Organization	Company Contact		Title
		First Name	Last Name	
Union Carbide - St. Charles	Union Carbide - St. Charles	Jared	St. Pier	
Union Carbide - St. Charles	Union Carbide - St. Charles	Brett	Matherne	Senior EHS Specialist
MPLX - Mt. Airy	MPLX - Mt. Airy	John David	Neal	Terminal Manager
MPLX - Mt. Airy	MPLX - Mt. Airy	Patrick	Williams	
Occidental - Convent	Occidental - Convent	Courtney	Rome	Technical Coordinator
Occidental - Convent	Occidental - Convent	Mark	Rismondy	Production Manager
Occidental - Convent	Occidental - Convent	Jake	Vakenti	Safety/Security Manager
Occidental - Convent	Occidental - Convent	Matt	Delicata	Production Superintendent
Occidental - Convent	Occidental - Convent	Steve	Welch	Plant Manager
Plains Marketing - St. James	Plains Marketing - St. James	Shannon	Duncan	HSE Professional
Plains Marketing - St. James	Plains Marketing - St. James	Joanna	Falgoust	Admin Assistant Professional
Plains Marketing - St. James	Plains Marketing - St. James	Jon	Hotard	Operations Supervisor
Americas Styrenics - St James	Americas Styrenics - St James	Durell	Morris	Env. Specialist
Americas Styrenics - St James	Americas Styrenics - St James	Dave	Thomas	Env. Compliance Manager
Americas Styrenics - St James	Americas Styrenics - St James	Jacob	Lasalvia	Plant Manager
Americas Styrenics - St James	Americas Styrenics - St James	Sam	Dupleses	Shift Supervisor
Americas Styrenics - St James	Americas Styrenics - St. James	Ben	Brignae	Ops Coordinator
Denka	Denka	Kevin	Volkel	Outside council
Denka	Denka	Akihiko	Kusaka	In-house council
Denka	Denka	Patrick	Walsh	HSE Manager
Denka	Denka	Koichi	Matsunaga	VP Technology
Denka	DuPont	Corey	Blanchard	
DuPont	DuPont	Toni	Martin	EHS Resource
DuPont	DuPont	Damon	Williams	
DuPont	DuPont	Mark	Schorr	Interim Plant Manager
DuPont	DuPont	Brad	Hill	Production Tech. Advisor
DuPont	DuPont	Lori Elisabeth	Sanders	Legal counsel
DuPont	DuPont	Douglas	Martin	Ops. Manager
DuPont	DuPont	Jason	Walker	EHS Consultants
DuPont	DuPont	Eric	Jarrell	Outside council
Nucor Steel - Louisiana	Nucor Steel - Louisiana	Marshall	Crawford	Env. Manager
Nucor Steel - Louisiana	Nucor Steel - Louisiana	Lane	Grant	Technical Manager
Nucor Steel - Louisiana	Nucor Steel - Louisiana	Eric	Caruso	Env. Engineer
Nucor Steel - Louisiana	Nucor Steel - Louisiana	Davre	Lartigue	Operations Manager

Appendix G
Canister Sample Log and Chain of Custody Record

VP1456E03
GMAP R6 Pollution Accountability Team FY2022
Calcasieu Parish, Louisiana
St. Charles Parish, Louisiana
St. James Parish, Louisiana
St. John the Baptist Parish, Louisiana

7 pages

NEIC Canister Number	ORD Canister Number	Map ID	Date/Time	Sampler	Facility Short Name	Potential Source
3071	11685	220411_MA10	4/11/2022 12:54	Helmich	Louisiana Integrated Polyethylene	Cracker
10027	11670	220411_MA14	4/11/2022 13:34	Helmich	Louisiana Integrated Polyethylene	Cracker
3101	12318	220411_MA28	4/11/2022 15:16	Helmich	Sasol	EOEG
3068	12169	220411_MA35	4/11/2022 16:22	Helmich	Sasol	EtO/Ethoxylate
4612	12175	220412_MA01	4/12/2022 7:59	Helmich	Field blank	
521	12307	220412_MA24	4/12/2022 12:49	Helmich	Phillips 66 - Lake Charles	Tank 82
3116	12151	220412_MA41	4/12/2022 15:55	Helmich	Phillips 66 - Lake Charles	Tank 2001
9497	11686	220412_MA47	4/12/2022 17:03	Helmich	Phillips 66 - Lake Charles	
	11678	220413_MA09	4/13/2022 10:01	Helmich	LOTTE	MEG Unit
4621	12306	220413_MA12	4/13/2022 10:43	Helmich	LOTTE	Tank T-1807
4609	12171	220413_MA16	4/13/2022 11:11	Helmich	LOTTE	Thermal oxidizer
	12137	220413_MA37	4/13/2022 15:25	Helmich	Westlake - South	Unknown
	12148	220413_MA42	4/13/2022 15:54	Helmich	Westlake - South	Powerhouse C
4605		220414_MA36	4/14/2022 13:15	Helmich	Citgo	Marine loading docks
10007		220414_MA42	4/14/2022 14:15	Helmich	Citgo	WWTP
10009		220415_MA03	4/15/2022 9:21	Helmich	Marathon - Garyville	API oil/water separator
9490	12158	220415_MA07	4/15/2022 10:25	Helmich	Marathon - Garyville	Tank 300-19
	11669	220416_MA13	4/16/2022 10:18	Helmich	near Denka	
3066	11680	220416_MA24	4/16/2022 11:36	Helmich	near Evonik - Reserve	
4606	12172	220418_MA13	4/18/2022 10:59	Helmich	Evonik Reserve	EO scrubber
527		220418_MA54	4/18/2022 16:30	Helmich	Americas Styrenics - St. James	Benzene tank
535		220418_MA56	4/18/2022 16:46	Helmich	Americas Styrenics - St. James	Benzene tank
00278	11677	220419_MA17	4/19/2022 12:19	Helmich	Union Carbide - St. Charles	Railcar loading
10018	12311	220419_MA23	4/19/2022 12:59	Helmich	Union Carbide - St. Charles	Acrylics unit
00118	12153	220419_MA35	4/19/2022 15:30	Helmich	Union Carbide - St. Charles	WWTP
4602		220420_MA08	4/20/2022 10:16	Helmich	Union Carbide - St. Charles	Olefins #2
	12156	220420_MA11	4/20/2022 10:38	Helmich	Union Carbide - St. Charles	Olefins #2
3073	12161	220421_MA32	4/21/2022 15:01	Helmich	Public road	Barge loading
4618	12159	220421_MA37	4/21/2022 16:43	Helmich	Americas Styrenics - St. James	SM2 styrene plant
00279		220421_MA39	4/21/2022 16:57	Helmich	Americas Styrenics - St. James	SM2 styrene plant
4601		220421_MA54	4/21/2022 17:49	Helmich	Americas Styrenics - St. James	DNBP plant
10021		N/A	4/22/2022 13:20	Mahoney		
10006		N/A	4/22/2022 13:22	Mahoney		
10005		N/A	4/22/2022 13:25	Mahoney		
4614		N/A	4/22/2022 13:28	Mahoney		
10008		220422_MA11	4/22/2022 15:00	Helmich	DuPont	WWTP
519		220422_MA18	4/22/2022 17:10	Helmich	Denka	Poly building
	11675 (ERG)	220422_MA19	4/22/2022 17:17	Helmich	Denka	Poly building
3119	12173	220423_CA02	4/23/2022 14:49	Helmich	Field blank	
10023		220423_CA02	4/23/2022 15:16	Helmich	Field blank	

Chain of Custody Record

Eastern Research Group, Inc.

601 Keystone Park Drive, Suite 700, Morrisville, NC 27560

Page _____ of _____

PROJECT: VPI456 GMAP R6 P.A.T. FY22

SITE: Various

COLLECTED BY (Signature): Richard Helmick

FIELD SAMPLE I.D.	SAMPLE MATRIX	DATE/TIME	NO. OF CONTAINERS	ANALYSES: TO15					REMARKS	ERG LIMS ID (For lab use only)
NEIC Can 3116	Air	4/12/22 / 1555	1	✓					~400 ppb VCC	
NEIC Can 9497	Air	4/12/22 / 1703	1	✓					~20 ppb benzene	
NEIC Can 4621	Air	4/13/22 / 1043	1	✓					~40 ppb benzene	
NEIC Can 4609	Air	4/13/22 / 11:11	1	✓					Possible EO	
NEIC Can 4605	Air	4/14/22 / 1315	1	✓					high VCC	
NEIC Can 10009	Air	4/15/22 / 925	1	✓					high VOCs	

REMARKS:

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME
Richard Helmick	4/15/22	800	Richard Helmick	4/16/22	1600						

LAB USE ONLY

RECEIVED FOR LABORATORY BY:	DATE	TIME	AIRBILL NO.	OPENED BY:	DATE	TIME	TEMP °C	SEAL #	CONDITION

REMARKS:

NEICVP1456E03
(Replacement)

White: Sample Traveler

Canary: Lab Copy

GMAP R6 PAT FY22, Louisiana

Pink: Field Copy

Chain of Custody Record

Eastern Research Group, Inc.

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Page _____ of _____

PROJECT: VI1456 GMAP R6 P.A.T. FY22

SITE: Various

COLLECTED BY (Signature): Richard Helmick

FIELD SAMPLE I.D.	SAMPLE MATRIX	DATE/TIME	NO. OF CONTAINERS	ANALYSES: TO15	ANALYSES	ANALYSES	ANALYSES	ANALYSES	REMARKS	ERG LIMS ID (For lab use only)
NEIC Can 9490	Air	4/15/22 / 1025	1	✓					high VOCs	
NEIC Can 10007	Air	4/14/22 / 1415	1	✓					high VOCs	

REMARKS:

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME
Richard Helmick	4/15/22	1000	Richard Helmick	4/15/22	1000						

LAB USE ONLY

RECEIVED FOR LABORATORY BY:	DATE	TIME	AIRBILL NO.	OPENED BY:	DATE	TIME	TEMP °C	SEAL #	CONDITION

REMARKS:

NEICVP1456E03
(Replacement)
White: Sample Traveler

Canary: Lab Copy

GMAP R6 PAT FY22, Louisiana
Pink: Field Copy

Chain of Custody Record

Eastern Research Group, Inc.

601 Keystone Park Drive, Suite 700, Morrisville, NC 27560

Page _____ of _____

PROJECT VP1456 GMAP R6 PAT. FY22

SITE Various

COLLECTED BY (Signature) Richard Hchmid

FIELD SAMPLE I.D.	SAMPLE MATRIX	DATE/TIME	NO. OF CONTAINERS	ANALYSES: TO-15					REMARKS	ERG LIMS ID (For lab use only)
NEIC Can 3071	Air	4/11/22 / 1254	1	✓					~5000 ppb VOC	
NEIC Can 10027	Air	4/11/22 / 1334	1	✓					~4 ppb EO	
NEIC Can 3101	Air	4/11/22 / 1516	1	✓					~1200 ppb VOC	
NEIC Can 3068	Air	4/11/22 / 1622	1	✓					~6000 ppb VOC ~5 ppb EO	
NEIC Can 4612	Air	4/12/22 / 800	1	✓					Field Blank	
NEIC Can 521	Air	4/12/22 / 1249	1	✓					Elevated VOC	

REMARKS:

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME
Richard Hchmid	4/8/22	800	Richard Hchmid	4/6/22	1600						

LAB USE ONLY

RECEIVED FOR LABORATORY BY:	DATE	TIME	AIRBILL NO.	OPENED BY:	DATE	TIME	TEMP °C	SEAL #	CONDITION

REMARKS:

NEICVP1456E03
(Replacement)

White: Sample Traveler

Canary: Lab Copy

GMAP R6 PAT FY22, Louisiana

Pink: Field Copy

Chain of Custody Record

ERG
Eastern Research Group, Inc.

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Page _____ of _____

PROJECT: VPH456 GMAP R6 PAT. FY22			NO. OF CONTAINERS	ANALYSES						
SITE: Various										
COLLECTED BY (Signature): Richard Helmick				TO-15						
FIELD SAMPLE I.D.	SAMPLE MATRIX	DATE/TIME							REMARKS	ERG LIMS ID (For lab use only)
NEIC Can 4602	Air	4/20/22 / 1015	1	✓					1500 ppb VCC	
NEIC Can 00279	Air	4/21/22 / 1650	1	✓					VERY High Benzene, VCC	
NEIC Can 4601	Air	4/21/22 / 1750	1	✓					VCC 350 ppb Benzene 240 ppb Toluene 110 ppb	
NEIC Can 00278	Air	4/17/22 / 12:19	1	✓					EO ~ 20 ppb	
NEIC Can 00180	Air	4/17/22 / 1530	1	✓					VCC ~ 1200 ppb, EO ~ 15 ppb	
NEIC Can 00182	Air	4/17/22 / 1259	1	✓					EO max ~ 18 ppb	

REMARKS:

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME
Richard Helmick	4/11/22	1400	Richard Helmick	4/22/22	1400						

LAB USE ONLY

RECEIVED FOR LABORATORY BY:	DATE	TIME	AIRBILL NO.	OPENED BY:	DATE	TIME	TEMP °C	SEAL #	CONDITION

REMARKS:

NEICVP1456E03
(Replacement)
White: Sample Traveler

Canary: Lab Copy

GMAP R6 PAT FY22, Louisiana
Pink: Field Copy

Chain of Custody Record

Eastern Research Group, Inc.

601 Keystone Park Drive, Suite 700, Morrisville, NC 27560

Page _____ of _____

PROJECT: VI1456 GMAP R6 T.A.T. FY22

SITE: Various

COLLECTED BY (Signature): Richard Helmick

FIELD SAMPLE I.D.	SAMPLE MATRIX	DATE/TIME	NO. OF CONTAINERS	ANALYSES: TO15					REMARKS	ERG LIMS ID (For lab use only)
NEIC Can 3006	Air	4/16/22 / 1135	1	✓					EO - wax - 6ppb	
NEIC Can 31169	Air	4/22/22 / 1447	1	✓					Field Blank	
NEIC Can 1606	Air	4/18/22 / 1059	1	✓					EO - 28 ppb	
NEIC Can 10023	Air	4/23/22 / ~~1446~~ 1516	1	✓					Field Blank	
NEIC Can 527	Air	4/18/22 / 1630	1	✓					benzene - 15 ppb	
NEIC Can 535	Air	4/18/22 / 1646	1	✓					benzene - 35 ppb	

REMARKS:

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME
Richard Helmick	4/11/22	1600	Richard Helmick	4/23/22	1600						

LAB USE ONLY

RECEIVED FOR LABORATORY BY:	DATE	TIME	AIRBILL NO.	OPENED BY:	DATE	TIME	TEMP °C	SEAL #	CONDITION

REMARKS:

NEICVP1456E03
(Replacement)
White: Sample Traveler

Canary: Lab Copy

GMAP R6 PAT FY22, Louisiana

Pink: Field Copy

Chain of Custody Record

ERG
Eastern Research Group, Inc.

601 Keystone Park Drive, Suite 700, Morrisville, NC 27560

Page _____ of _____

PROJECT: VP1456 GMAP R6 P.A.T. FY22

SITE: Various

COLLECTED BY (Signature): Richard Helmick

FIELD SAMPLE I.D.	SAMPLE MATRIX	DATE/TIME	NO. OF CONTAINERS	ANALYSES: TO-15					REMARKS	ERG LIMS ID (For lab use only)
NEIC Can 3073	Air	4/21/22 / 1501	1	✓					VOC 7000 ppb benzene ~15 ppb toluene ~10 ppb	
NEIC Can 4618	Air	4/21/22 / 1643	1	✓					VOC 7000 ppb benzene 600 ppb	
NEIC Can 579	Air	4/22/22 / 1710	1	✓					VOC ~800 ppb	
ORD Can 11675	Air	4/22/22 / 1717	1	✓					VOC 2500 ppb, toluene 90 ppb	
NEIC Can 4614	Air	4/22/22 / 1320	1	✓					elevated VOC	
NEIC Can 10021	Air	4/22/22 / 1320	1	✓					elevated VOC	

REMARKS:

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME
Richard Helmick	4/11/22	1600	Richard Helmick	4/13/22	1600						

LAB USE ONLY

RECEIVED FOR LABORATORY BY:	DATE	TIME	AIRBILL NO.	OPENED BY:	DATE	TIME	TEMP °C	SEAL #	CONDITION

REMARKS:

NEIC Can 10006	Air	4/22/22 / 1322	1	✓	elevated VOC
NEIC Can 10005	Air	4/22/22 / 1325	1	✓	elevated VOC
NEIC Can 10008	Air	4/22/22 / 1330	1	✓	VOC 950 ppb

NEICVP1456E03
(Replacement)
White: Sample Traveler

Canary: Lab Copy

GMAP R6 PAT FY22, Louisiana
Pink: Field Copy