Summary Report
U.S. Environmental Protection Agency (EPA) and
Louisiana Department of Environmental Quality (LDEQ)
Air Monitoring for Chloroprene Concentrations
near the Denka Performance Elastomer LLC (DPE) Facility
in LaPlace, Louisiana
May 25, 2016 through July 16, 2020
September 2020

SUMMARY REPORT
Air Monitoring for Chloroprene Concentrations in LaPlace, LA from May 25, 2016 through July 16, 2020

EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA) and the Louisiana Department of Environmental Quality (LDEQ) began ambient air monitoring in the LaPlace, LA, community surrounding the Denka Performance Elastomer, LLC (DPE) facility in March 2016. Since March 2018, following the implementation of emission controls being installed by DPE, chloroprene stack emissions have been reduced by 85% and EPA air monitoring data have shown corresponding significant reductions of chloroprene concentrations in the community.

The air monitoring program was implemented in response to the 2011 National Air Toxics Assessment (which was released in late December 2015) to determine if modeled concentrations of chloroprene in the air were present at levels of concern. EPA established six monitoring locations in LaPlace in May 2016 and began sampling each location to monitor and analyze concentrations of chloroprene in the air near the DPE facility.

Chloroprene is one of the 187 pollutants that Congress classified as "hazardous air pollutants," also called air toxics. The Clean Air Act instructs EPA to regulate air toxics by setting limits on the amount of air pollution that industrial sources can *emit* to the air, rather than by setting *ambient standards*, which are limits on the amount of a pollutant that is allowed in outdoor air.

Air monitoring of chloroprene has allowed EPA and LDEQ to document the reductions in chloroprene levels in the community due to emission reductions at the facility. EPA noted that the post-control data collected between March 2018 to July 2020 indicated that annual averages in the community would be lower except for occasional elevated measurements, or "spikes," that contribute to the averages. In order to understand the magnitude and frequency of these occasional, but recurring, elevated chloroprene measurements or "spikes," EPA began a Continuous Air Monitoring Program in March 2020.

The Continuous Air Monitoring Program is designed to measure short-term concentrations of chloroprene and provide important additional information to help identify potential opportunities to further reduce chloroprene emissions. The Continuous Air Monitoring Program, barring unforeseen circumstances, will operate until December 2020.

In addition to EPA's Continuous Air Monitoring Program, DPE has conducted their own air monitoring for chloroprene at six locations in LaPlace. Based on our analysis, DPE's air monitoring data results have generally tracked well when compared to EPA's monitoring data. DPE has committed to continue their air monitoring efforts in the community through calendar year 2021.

BACKGROUND

The U.S. Environmental Protection Agency's (EPA) National Air Toxics Assessment (NATA), released on December 17, 2015 using the 2011 national emissions inventory, is a nationwide screening-level computer modeling assessment. The model estimated high levels of chloroprene in the community of LaPlace, LA.

At the time of the NATA release, these levels of chloroprene were predicted by the model, but not confirmed by air monitoring results to actually be present in the community. To determine if the chloroprene levels of concern were present in the ambient air, EPA and the Louisiana Department of Environmental Quality (LDEQ) conducted preliminary air monitoring in the community.

LDEQ conducted an initial air monitoring survey on six days between March 1 through March 10, 2016. LDEQ collected 25 short-term grab samples from different locations in the community of LaPlace. The sampling results detected chloroprene and indicated a need to determine if chloroprene was in the ambient air over longer periods of time.

During the same period, EPA collected a total of 20 samples, up to 24-hours in duration, from five different locations within the community of LaPlace. EPA's sampling results confirmed LDEQ's findings and the need for additional air monitoring in the community.

EPA began monitoring for chloroprene in the neighborhoods near the Denka Performance Elastomers (DPE) Pontchartrain Facility (formerly the DuPont Neoprene Facility, Pontchartrain Works) in May 2016. The purpose of the monitoring was to collect air samples to assist in EPA's assessment of the presence of chloroprene in the community. To communicate information to the community during the monitoring period, EPA provided individual sample results at each site throughout the monitoring period at the following website: [HYPERLINK "https://www.epa.gov/la/denka-air-monitoring-data-summary"]. The monitoring data summarized in this report covered the period from May 25, 2016 to July 16, 2020 and are included as an attachment to this document.

Beginning on May 25, 2016, EPA collected samples every third day at six monitoring sites. Beginning on March 1, 2019, the sample collection frequency became every sixth day. The sample collection duration is 24 consecutive hours. For data quality purposes, EPA collected one additional, collocated sample at one of the six monitoring sites. The collocated sample location was selected on the day of sampling based on the predicted direction of the winds for that day of sampling. A map of the EPA community air monitoring locations is below.

Figure 1. EPA Community Ambient Air Monitoring Locations, LaPlace, LA

DATA SUMMARY

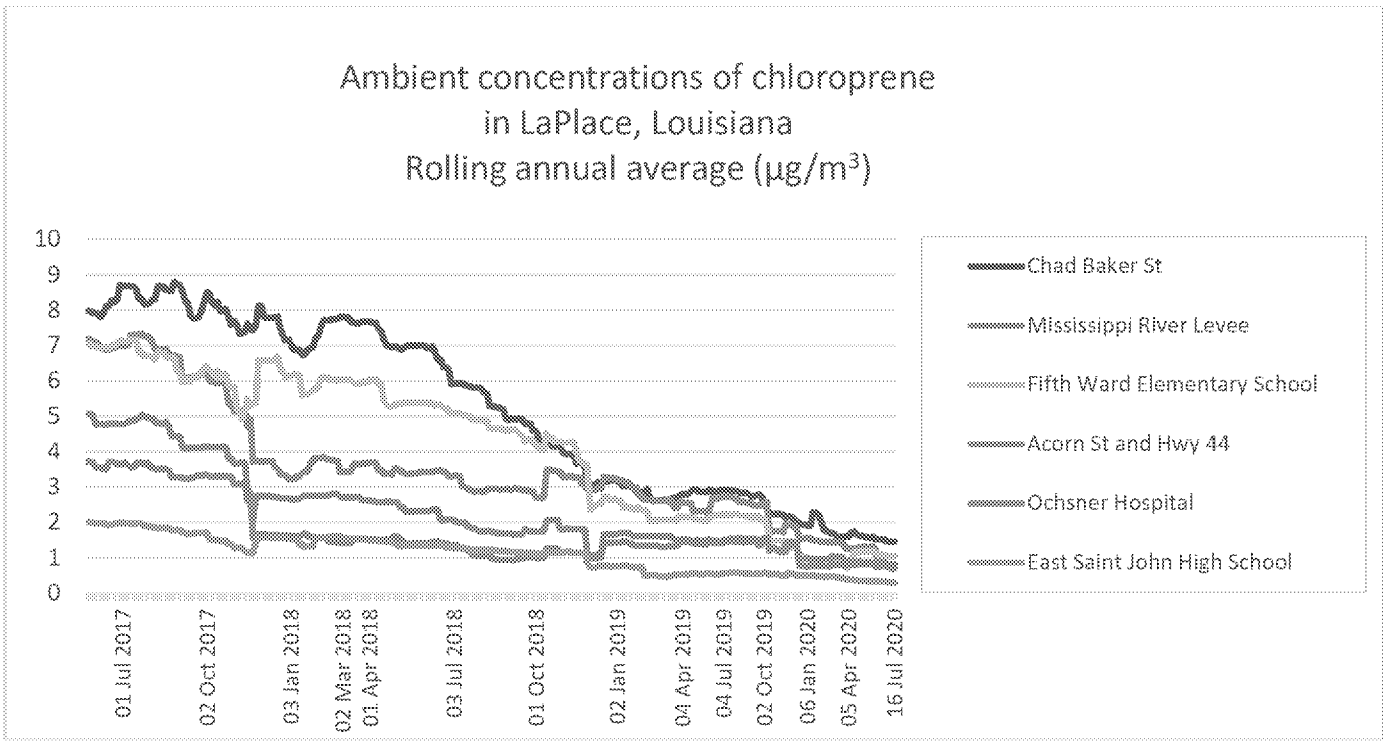
LDEQ has been actively working with EPA and officials from DPE to address the chloroprene issues in LaPlace, Louisiana. LDEQ staff met with DPE officials and requested that the company formulate modeling, implement a monitoring plan, and develop actions to reduce emissions.

LDEQ's Agreed Order on Consent issued to DPE resulted in the facility completing four major construction projects by December 2017 to control chloroprene emissions. This included the installation of a regenerative thermal oxidizer (RTO), two condensers, and equipment upgrades and controls for vents and fugitive emissions to reduce emissions of chloroprene. All of these chloroprene emission control measures became fully operational by March 2018.

From May 2016 to March 2018, the daily chloroprene levels at each of the monitors were higher than daily levels after March 2018, when the new chloroprene emission controls at the facility were fully implemented, indicating that the emission controls were effective in reducing the facility's chloroprene emissions.

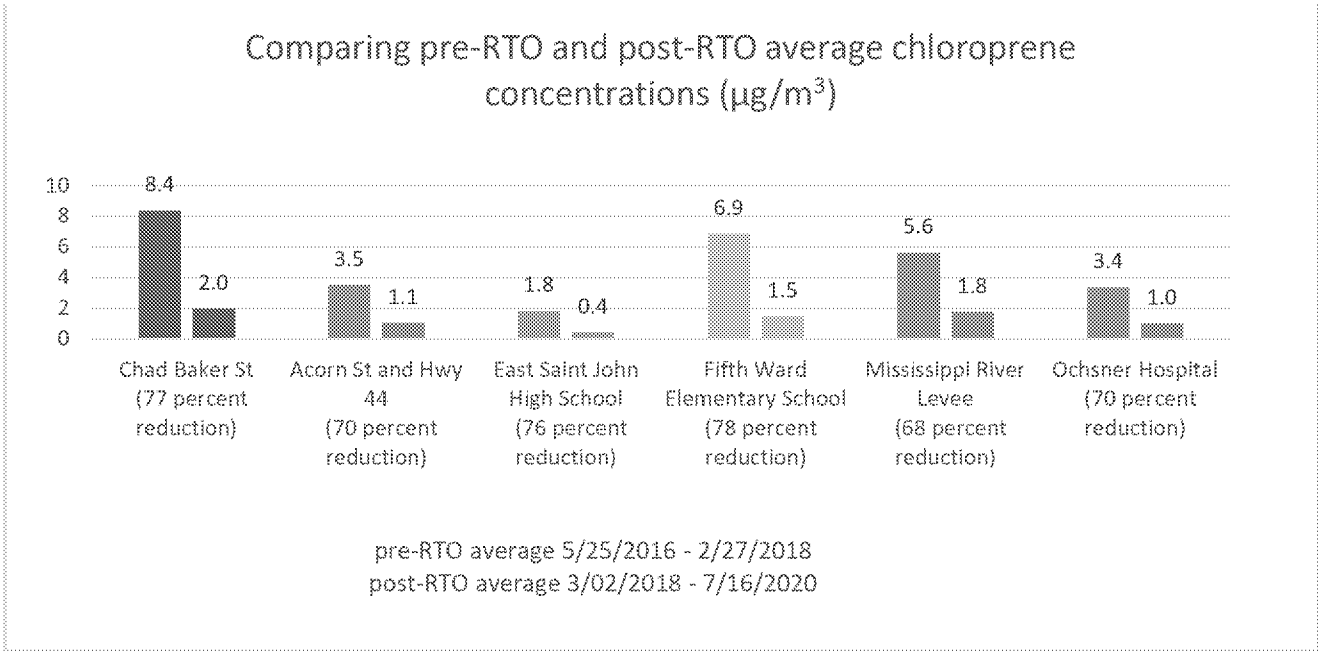
The chart below shows a "rolling annual average" at each monitoring site. A "rolling annual average" takes the sample results for the 12 months before a sampling day, averages them, and places that value as a data point on the chart. With every next sampling day, those 12 months "roll" or move forward, to capture the 12 months before that day, the results are averaged, and this value is shown as the next data point.

The highest annual rolling averages are in the time period before the implementation of additional emission controls at the facility in March 2018. The rolling annual averages drop consistently at all six air monitoring sites from March 2018 to July 2020.

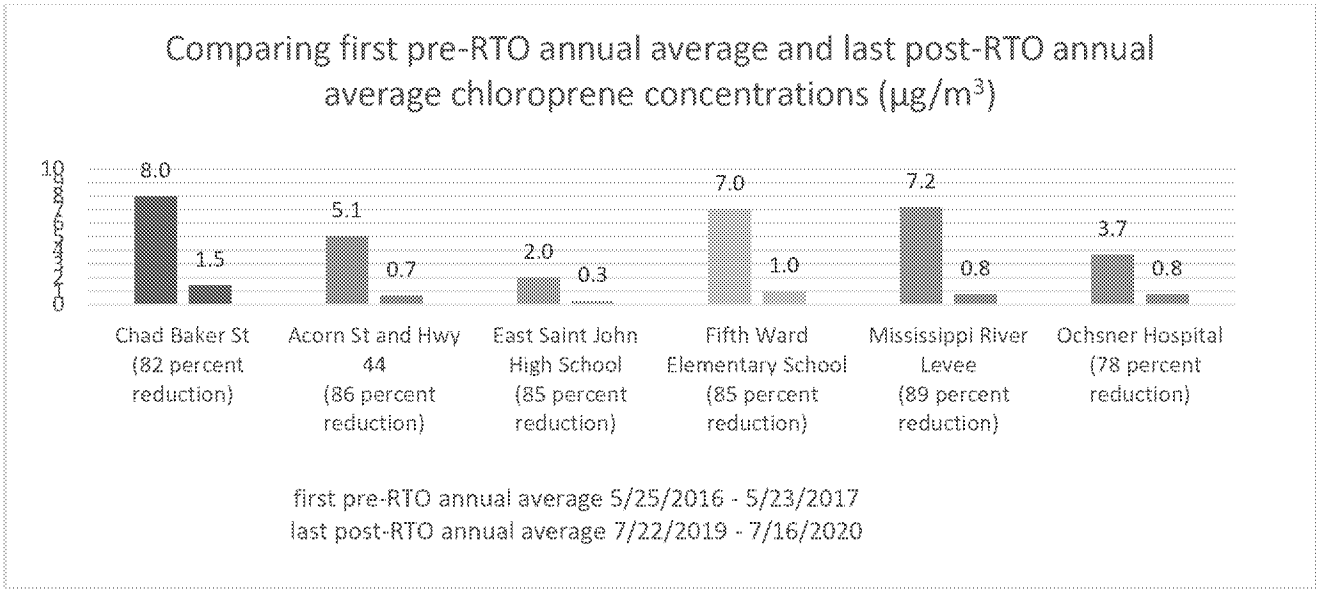


Since March 2018, air sampling results have shown a substantial reduction in chloroprene emissions at all monitoring locations. The last of the chloroprene emission control devices to become fully operational (in March 2018) was an RTO. The latest annual chloroprene emissions inventory data reported by DPE, based on 2019 data, reflect an emission reduction of 85% compared to 2014 emissions inventory data.

To illustrate how the reduction of chloroprene emissions at the facility resulted in lower levels of chloroprene in the air surrounding the facility, the average chloroprene levels detected by the community air monitors before (pre) and after (post) the full operation of the RTO in March 2018 were compared. As shown in the chart below, there has been a 68% to 78% drop in average chloroprene concentrations at the monitors in the community surrounding the facility.



A comparison of the annual rolling averages in the time periods before (pre) and after (post) full operation of the RTO shows even larger chloroprene concentration decreases of the pre- and post-RTO operation at every EPA community air monitoring site around the facility. The percent average decrease in annual average rolling concentrations at the community monitoring sites ranged from 78% to 89%.



DATA QUALITY

EPA is confident in the data quality of the sample analysis results for the entire duration of this monitoring effort. Field sampling checks and calibration targets, as well as laboratory analytical quality assurance and control measures, were met for all the EPA community air monitoring data posted to the EPA LaPlace website.

For data quality purposes, EPA collected one collocated sample at one of the six community monitoring sites. Collocated sample results provide assurance that measured chloroprene levels are accurate and comparable.

EPA completed quality control reviews of the raw sample data results to assure they met EPA air sampling quality goals. These additional reviews further confirmed EPA's confidence in the identification and quantitation of the chloroprene results from the EPA air monitoring sites in the community surrounding the DPE facility.

COMPARISON OF EPA COMMUNITY AIR MONITORING TO DPE AIR MONITORING

DPE has conducted their own air monitoring for chloroprene at the following locations in LaPlace, shown on Figure 2.

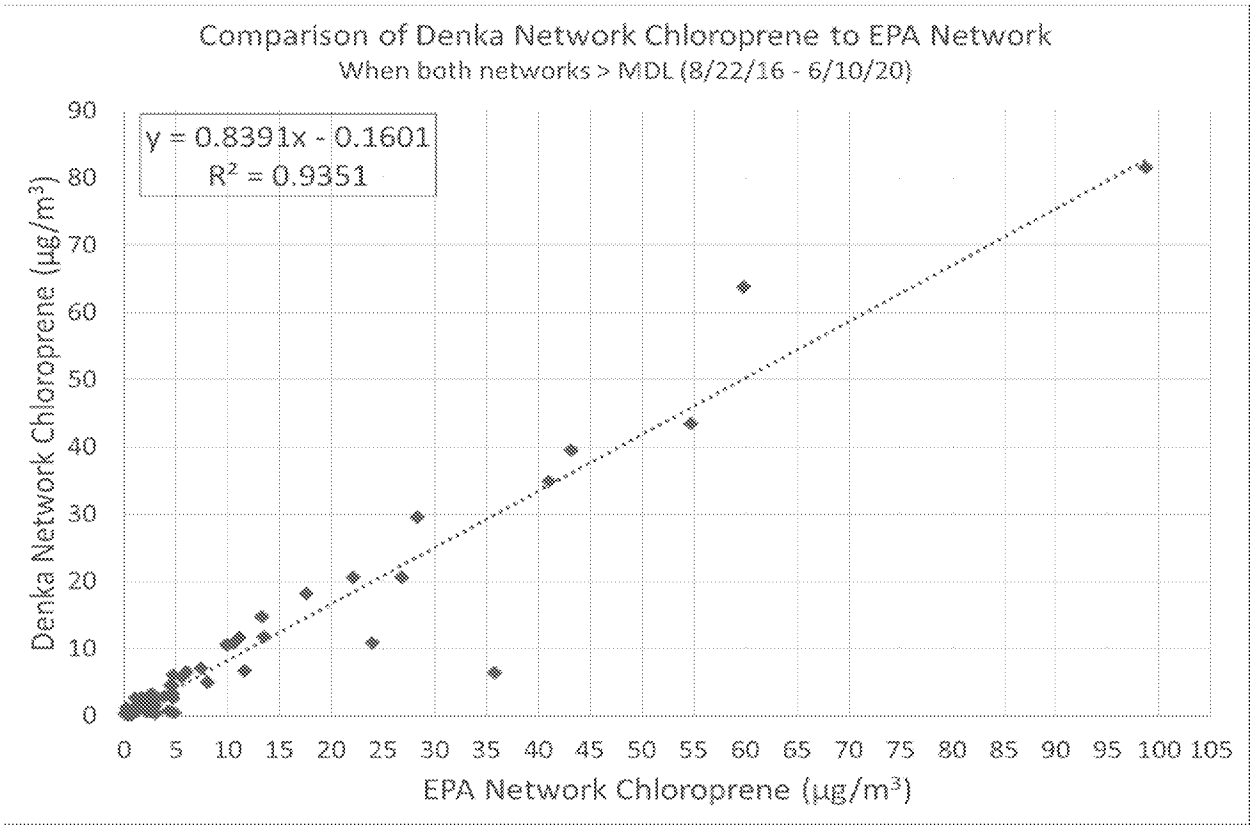
1. Entergy Site
2. Railroad & Highway 44
3. Western Edge of DPE Property
4. Mississippi River Levee
5. Ochsner River Parishes Hospital
6. Edgard

Figure 2. DPE Air Monitoring Locations, LaPlace, LA

EPA compared the EPA community monitoring data and the DPE monitoring data. The charts below compare the EPA and DPE results from the Levee and Hospital sampling sites. EPA chose to compare these two locations because the EPA and DPE monitoring equipment at the sites are the most closely located. The sample results being compared from both monitoring networks are from the same site and have the same start day.

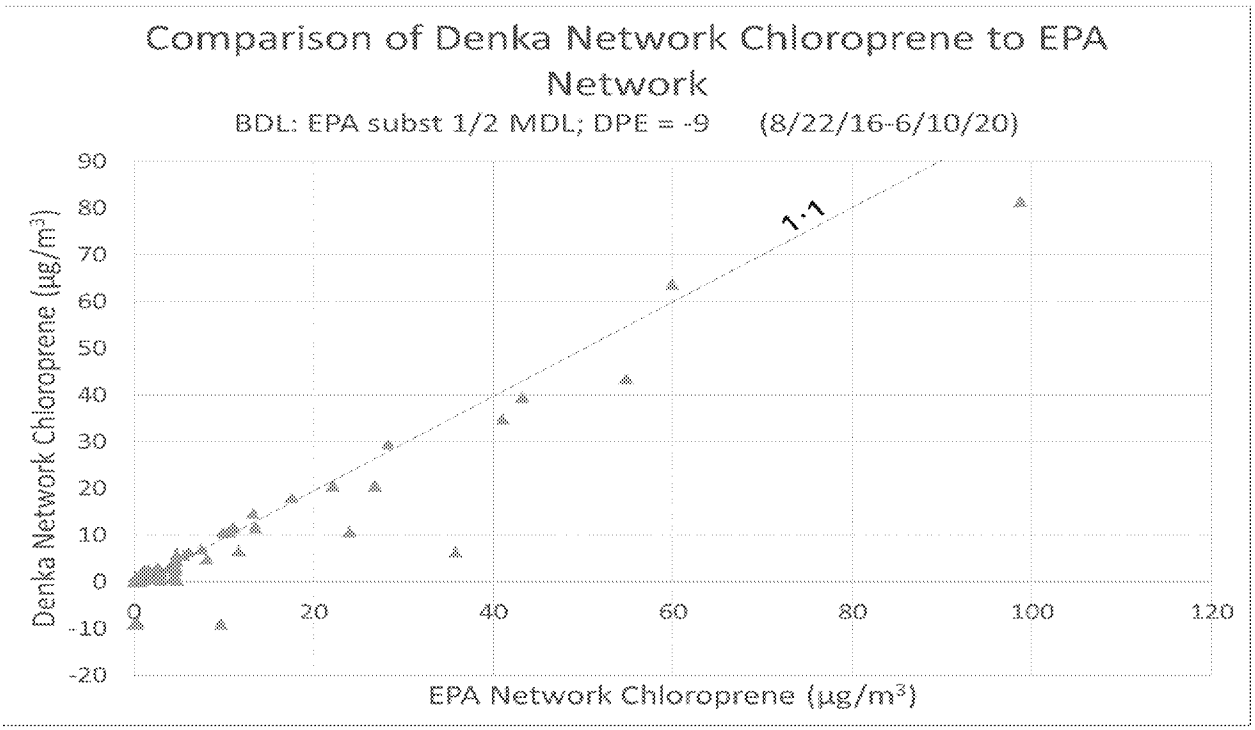
The first comparison is for days when both EPA and DPE monitoring results are greater than the minimum detection limit (MDL) of the respective sample analytical methods being used. In other words, the comparison occurs when both networks have sampling results on the same day at these two sites.

As can be seen in the following chart, the chloroprene air sampling results from both the EPA and DPE air monitoring networks are well correlated. A correlation factor equal to 1 is ideal. In this case, a factor of 0.9351 is very good. Also, in general, the closer the points in the chart are to the dashed line, the closer the two sets of sample results track. Stated simply, the results from the two sites, one EPA and one DPE, are comparable.



A second comparison, illustrated in the chart that follows, looks at sample results when the DPE sampling result was below the analytical method MDL but for which a sample result could be estimated. This comparison was done to see if the corresponding EPA sample result at the same site and on the same day is also relatively low.

The closer the points in the chart are to the solid line, the closer the two sets of sample results correlate. As seen in the chart below, at these lower chloroprene levels, which are more typical in the current post-RTO time frame, the air sampling results from both the EPA and DPE air monitoring networks are again comparable.



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SUMMARY

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Attachment: EPA Community Air Monitoring Data Results May 25, 2016 through July 16, 2020