Ambient Air Sampling/Monitoring Plan for Chloroprene in the Area Near Denka Performance Elastomer Pontchartrain Facility, LaPlace, Louisiana (Formerly the DuPont Neoprene Facility, Pontchartrain Works)

May 2016

Introduction

This plan describes the ambient air monitoring activities that the U.S. Environmental Protection Agency (EPA) and its contractors will complete in the neighborhoods near the Denka Performance Elastomer (DPE)-Pontchartrain Facility, formerly owned by E.I. DuPont de Nemours (and formerly called the DuPont Neoprene Facility, Pontchartrain Works) in LaPlace, Louisiana.

Section 1: Project Description

1.1 Overview

The 2011 National Air Toxics Assessment (NATA) suggests that estimated cancer risks posed by chloroprene in several census tracts in the vicinity of LaPlace, St. John the Baptist Parish, Louisiana require further evaluation. In response to this, the most recent release of the NATA, EPA has developed this plan for monitoring chloroprene in the ambient air in the neighborhoods surrounding the DPE-Pontchartrain Facility in LaPlace, Louisiana. The Louisiana Department of Environmental Quality (LDEQ) and the DPE-Pontchartrain Facility are also performing monitoring of the ambient air in the area surrounding the facility, and all three entities are coordinating with each other.

1.2 Project Objectives

The objectives of the ambient air monitoring activities are to 1) quantify ambient air levels of chloroprene in the community surrounding the DPE-Pontchartrain Facility, and
2) provide a basis for additional actions by EPA, state, and local agencies including, but not limited to, additional monitoring and enforcement.

Section 2: Project Monitoring Design

2.1 Site Selection

The DPE-Pontchartrain Facility in LaPlace, Louisiana, is the only chloroprene producing facility in the United States.

2.2 Monitor Siting

The EPA and its contractors will follow the monitor siting criteria detailed in the Code of Federal Regulations (CFR) Chapter 40 Section 58, Appendix E, where relevant and appropriate for this monitoring program. EPA and its contractors will consider monitor placement guidelines such as the following:

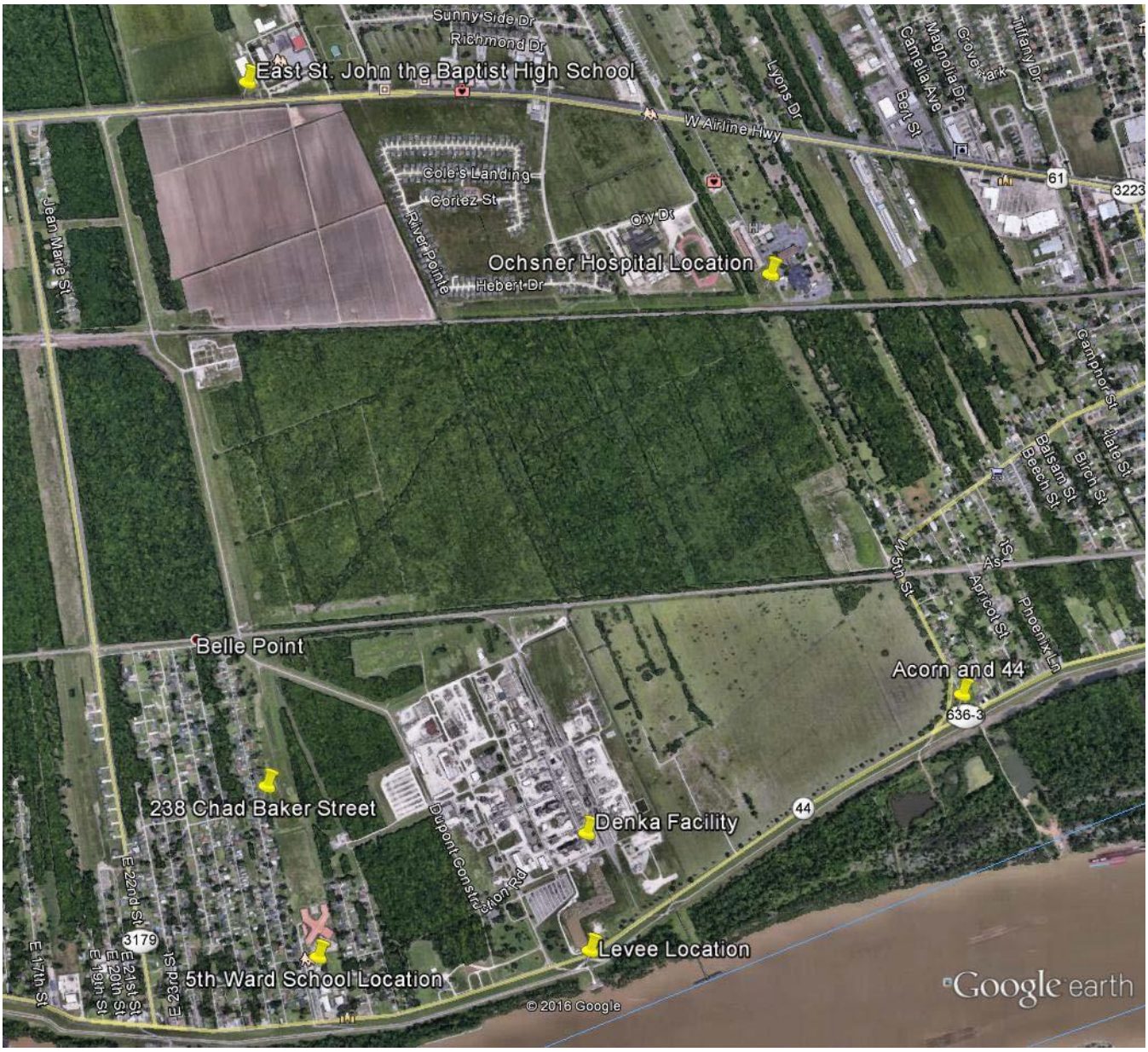
- Locating the sampler in an area that has an unobstructed air flow, especially in the direction of any recognized sources of target analytes,
- Avoiding locations that are directly influenced by nearby adjacent, biasing emission sources (e.g., boiler stacks, backup generators, school-bus idling areas),
- Avoiding locations where reactive surfaces may cause chemical changes in the air sampled,
- Placing the intake probe(s) of samplers at a representative height between 2 and 7 meters above ground level,
- Avoiding personnel and apparatus security issues, and related accessibility issues during both weekdays and weekends/holidays, and
- Documenting the sampler siting location with information such as digital pictures of the site from the eight cardinal directions, and GPS coordinates.

See Figure 1 and Table 1 which describes the sampling locations. See Figure 1 which shows the sampling locations.

Table 1: Sampling location identification
DPE-Pontchartrain Facility, LaPlace, Louisiana

	Name	Lat	Long	Air Quality System ID Number
1	Ochsner Hospital	30.071420°	-90.515436°	22-095-8001
2	Acorn and Hwy 44	30.058785°	-90.509599°	22-095-8002
3	Mississippi River Levee	30.051803°	-90.522571°	22-095-8003
4	5th Ward Elementary School	30.051938°	-90.531859°	22-095-8004
5	238 Chad Baker	30.057070°	-90.533381°	22-095-8005
6	East St. John High School	30.077830°	-90.532944°	22-095-8006
7	Ochsner Hospital Rooftop – Meteorological Station	30.072270°	-90.514800°	22-095-8007

Figure 1: Map of sampling locations around the DPE-Pontchartrain Facility, LaPlace, Louisiana



2.3 Meteorological Measurements

The EPA and its contractors will measure meteorological data with a portable meteorological station located on the rooftop of the Ochsner Hospital monitoring site, at a height of approximately 15 meters. Measured parameters will include vector wind speed and direction, barometric pressure, dew point, precipitation, relative humidity, and temperature. Readings will be stored as 1-minute averages on a dedicated web site and then rolled up into 1-hour averages to support the analysis of air monitoring data.

As with siting of the air sampling equipment, EPA and its contractors will follow the standard meteorological monitoring equipment siting criteria (Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements Version 2.0) where relevant and appropriate for this monitoring program. EPA and its contractors will site the meteorological monitoring equipment in accordance with the guidelines previously specified in this document for the air sampling equipment, whenever possible. Exceptions to these siting procedures may be necessary due to logistical factors such as security and power availability.

2.4 Measured Pollutant

The site-specific pollutant that the EPA and its contractors will monitor is chloroprene (IUPAC name: 2-chloro-1,3-butadiene, CAS # 126-99-8). The National Contract Laboratory selected by EPA to perform the sample analysis for this monitoring program is ERG. In this document, we refer to this laboratory as the analytical laboratory.

Section 3: Monitoring Protocols

3.1 Sampling Frequency, Duration, and Quantity

The EPA and its contractors will conduct ambient air sampling on a 1-in-3 schedule (once every third day), and will coordinate with the analytical laboratory regarding this schedule. Unless otherwise noted, each sampling event will begin approximately at 12:00 Local Standard Time (LST) and end approximately at 12:00 LST the next day. The base (minimum duration) sampling period is 180 days. There may be cases in which EPA may deem the 180-day sampling period insufficient, such as in the case of invalidated samples or insufficiently representative data, and extend the sampling period. The contractor EPA selected for these ambient air monitoring activities is Weston Solutions, Inc. In this document, we refer to this contractor as the field sampling contractor.

3.2 Field Sampling Methods

Consistency of measurement is necessary to achieve the program objectives described above. The ability to accurately detect pollutant concentrations and evaluate the data to assess the degree to which associated health risks may be present, requires a considerable level of standardization. To achieve these objectives, these ambient air monitoring activities will follow EPA Method TO-15 for the sample collection.

The sampling apparatus will consist of SUMMA or fused silica-lined, 6-liter canisters and critical orifice passive sampling kits that are calibrated for 24-hour sampling without the use of electricity. The field sampling contractor will place the canisters in the field and manually start and stop the sample collection. The field sampling contractor may also use battery operated electronic timers attached to each canister for programming the start and stop time for the collection of each sample. The inlet height will be approximately 2 meters. After 24 hours of sampling, the canister should remain under vacuum (negative pressure), and be shipped to the analytical laboratory.

The field sampling contractor will collect one collocated sample per sampling event. The collocated sample will require a separate sample inlet for each canister at the collocated site. The field sampling contractor will select the collocated sampling location based on prevailing wind direction the day of the sampling, such that it is downwind of the facility. Should the winds that day be light and variable, the field sampling contractor will select the collocated sampling location from the locations that are historically downwind of the facility.

3.3 Sample Analysis Methods

Like the field sample collection, the analysis of the samples collected for these ambient air monitoring activities will follow EPA Method TO-15.

The analytical laboratory will use sample preconcentration and Gas Chromatograph (GC)/Mass Selective Detector analysis in Selected-ion Monitoring/Scan mode; will perform GC/Mass Spectrometer calibration curves of chloroprene; and will use daily Continuing Calibration Verification checks to ensure proper QA/Quality Control (QC) of sample analyses. For instance, the analytical laboratory will use the collocated sample to check method precision.

The analytical laboratory determined the minimum detection limits that will be used to ensure that detection goals are met. The Minimum Detection Limit (MDL) established for chloroprene by the analytical laboratory 0.01 parts per billion volume (ppbv) or 0.035 micrograms per cubic meter (ug/m^3).

Along with the analysis of the canisters, to facilitate the field sampling, the analytical laboratory is responsible for the cleaning of the canisters and sampling apparatus and shipping these to the field sampling contractor. The analytical laboratory will also be responsible for periodically calibrating and verifying the correct operation of the flow controllers to ensure the validity of the 24-hour samples.

Once the sample analysis is validated, the analytical laboratory will send the data report and data summary to EPA, and enter the analytical data into the EPA Air Quality System (AQS) Database. (https://www.epa.gov/aqs)

3.4 Missed or Invalidated Samples and Changes to the Sampling Schedule

After 30 sampling events, EPA will evaluate the sampling data to determine whether changes to the sampling schedule or frequency are appropriate. For instance, if the sampling results are consistent, EPA may determine that a less frequent sampling schedule is appropriate. Or, EPA may decide to do additional sampling at the end of the 180 days (on the 1-in-3 schedule or a different schedule) to account for sampling data that are invalid due to discrepancies during sample collection or laboratory analysis.

It will take approximately two weeks after EPA and its contractors collect the last group of samples for EPA to determine whether these samples are valid. Once those data are available, EPA will consider whether to discontinue sampling at the end of the 180 days or to extend the schedule to account for discrepancies in the last round of sampling.

Section 4: Data Reporting Requirements

4.1 Sample Data

Quality assured ambient monitoring data will typically be reported to the EPA AQS within 45 calendar days of sample collection. The analytical laboratory will report these data biweekly to EPA in ppbv and ug/m^3. The analytical laboratory will report the date of the sample as the end date of the collection of that sample.

All data, including values below the MDL, will be reported to the AQS. EPA will not accept data value substitutions (e.g., ½ MDL.) For the purposes of AQS, the analytical laboratory will report data for VOCs with the units of ppbv and will use the National Air Toxics Trends Station Technical Assistance Document (Data Management Section) flags. For instance, the data tables will include these QA data flags for data below the MDL and for null data.

4.2 Meteorological Data

The field sampling contractor will download one-minute meteorological data during sample pickup from each site every third day, compute hourly averages, and submit the data to the EPA Region 6 and EPA HQ. A dedicated web site may also be used for this purpose. EPA and its contractors will append each set of downloaded meteorological data into a master file that will contain all meteorological data obtained for the duration of the project. The meteorological data will be entered into the EPA AQS Database. (https://www.epa.gov/aqs)

Section 5: Quality Assurance Project Plan

All environmental data operations associated with EPA's air toxics ambient monitoring program must fully comply with the EPA Publication QA/G5: "Guidance for Quality Assurance Project Plans" (http://www.epa.gov/quality/qa_docs.html). Thus, this monitoring program will follow the national Quality Assurance Project Plan (QAPP) developed by OAQPS, in accordance with this guidance document.

Section 6: Roles and Responsibilities

The State agency, LDEQ, is responsible for determining sampling locations and assisting EPA and its contractors with site setup and initial monitoring. EPA and LDEQ are both responsible for

- Gathering access information for the sampling locations,
- Establishing and operating the monitoring site(s) and using the sampling and analysis methodology described in this plan, and
- Complying with all other standards and protocols described in this plan, including the timely handling of incoming and outgoing sample media.

The EPA Region 6 office is responsible for selecting the contractor for the field sampling activities and coordinating the monitoring activities with the field sampling contractor and LDEQ during the sampling period.

EPA Headquarters (EPA HQ), through the Office of Air Quality Planning and Standards (OAQPS) is responsible for coordinating with the analytical laboratory and funding the sampling, analysis, and shipping. EPA OAQPS will work jointly with EPA Region 6 to support data analyses and the development of plans for follow-up actions.