Denka Performance Elastomer LLC
560 Highway 44
LaPlace, LA 70068

June 14, 2016

Via Hand Delivery

Dr. Chuck Carr Brown
Secretary
Louisiana Department of Environmental Quality
P.O. Box 4301
Baton Rouge, LA 70821-4301

RE: Response to LDEQ correspondence dated 5/27/16
Modeling protocol proposal update

Dear Dr. Brown,

In response to your letter dated 5/27/16, you requested an update to our modeling protocol proposal (hereafter "proposal"), hand delivered to LDEQ on 4/13/16. The original proposal submitted would model chloroprene concentrations in the surrounding area and compare those results against the current Ambient Air Standard of 857 $\mu g/m^3$ on an eight-hour basis.

Your 5/27/16 letter rejected the proposal because of EPA publications that, as stated in your letter, "[establish] the annual average standard for Chloroprene … at 0.2 $\mu g/m^3$." Although not totally clear, it appears that you reference the 2011 National-scale Air Toxic Assessment (NATA), published December 18, 2015, and the Integrated Risk Information System database entry for chloroprene (hereafter "IRIS entry"), published in 2010. Please note that both of these documents offer technical guidance only, as stated in their respective descriptions.[1,2] Neither attempts to set a new ambient air standard.

In addition, during a 5/27/16 meeting with DPE executives and LDEQ on 5/27/16, DPE requested to also model against a comparison ambient air guideline of 20 $\mu g/m^3$. This represents EPA's current reference concentration (RfC), a guideline used to set exposure risk, not an ambient air standard. You granted verbal permission to this request during the meeting. Per subsequent discussion with Lourdes Iturralde on 6/13/16, you will allow DPE to submit a revised modeling proposal using the RfC as the comparison guideline.

[1] https://www.epa.gov/national-air-toxics-assessment/nata-frequent-questions#background2
[2] https://www.epa.gov/iris/basic-information-about-integrated-risk-information-system

DPE regards the IRIS entry and the NATA study to be flawed, and is in the process of collaborating with EPA to revise both. As we have pointed out to you, a comprehensive, peer-reviewed study in 2014 concludes that the IRIS inhalation Unit Risk Estimate (URE), which is the basis for many of the calculations used in NATA, is approximately 300 times too large.[3] DPE is in the process of working with the IRIS group to take this new science into account and update the URE and RfC accordingly.

Given the above, DPE provides the attached proposal to satisfy LDEQ's request rather than comply with any set standard. Further, depending on the results of negotiations with the IRIS group, running the proposed models may become unnecessary.

If you have any questions regarding this submittal, please contact me at (985) 536-7573 or via email at Patrick-walsh@denka-pe.com.

Sincerely,

Patrick A. Walsh, CIH
Safety, Health, and Environmental Manager
Denka Performance Elastomer LLC

Attachment

[3] *See* Allen BC, Van Landingham C, Yang Y, Youk AO, Marsh GM, Esmen N, Gentry PR, Clewell III HJ, Himmelstein MW. (2014) "A constrained maximum likelihood approach to evaluate the impact of dose metric on cancer risk assessment: Application to β-chloroprene." *Regulatory Toxicology and Pharmacology* 70: 203–213.

ATTACHMENT A

Modeling Proposal

JUNE 2016

DENKA PERFORMANCE ELASTOMER LLC
PONTCHARTRAIN SITE

AIR QUALITY MODELING PROTOCOL

AGENCY INTEREST NO. 199310

Prepared By:

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Project Number 1132-001

PROVIDENCE

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1.0 INTRODUCTION

Denka Performance Elastomer LLC (DPE) submitted a Title V air permit minor modification application on December 8, 2015 for the HCl Recovery Unit, part of the DPE Pontchartrain Site, located in Laplace, St. John the Baptist Parish, Louisiana. This air quality dispersion modeling protocol is being submitted in response to an additional information request from the Louisiana Department of Environmental Quality (LDEQ) dated March 30, 2016 requesting that DPE submit a modeling protocol for chloroprene emissions at the DPE Pontchartrain Site.

Figure 1 shows the site location with respect to immediate surroundings and nearby populated areas.

2.0 PROCESS DESCRIPTION

The DPE Pontchartrain site includes the Neoprene Unit, Chloroprene Unit, and HCl Unit. The HCl Recovery Unit produces hydrochloric acid (HCl) by combustion of Neoprene-related process wastes. The hydrochloric acid production furnace consists primarily of two parallel independent combustion systems, each with a primary absorber, feeding a single common HCl absorption train. Each combustion system consists of a nominal 24 MMBtu/hr vortex burner, combustion chamber, spray cooling chamber, and primary absorber. Combined permitted capacity for both combustion chambers is approximately 3,853 lbs/hr of 52% chlorine feed.

Product gases leaving the combustion chamber are cooled in a quench chamber by spraying with recycled product acid. Gases exiting each spray cooing chamber enter primary absorbers to absorb HCl gas and water vapor. The process gases exit the two parallel primary absorbers and combine into one stream prior to entering the absorption train. This train consists of a secondary and tertiary absorber and a vent scrubber. HCl remaining in the cooled product gases leaving the primary absorber is absorbed in recirculating liquid flowing down the three packed absorption towers. Product acid from the primary and secondary absorber columns flows to the HCl products tanks. Gases leaving the vent scrubber enter the Dynawave unit for additional scrubbing to remove residual chlorine and HCl.

The Pontchartrain Site is a major source of Toxic Air Pollutants (TAP) as defined in LAC 33:III.Chapter 51.

3.0 POLLUTANTS TO BE MODELED

The LDEQ has requested that DPE submit an air quality dispersion modeling protocol for chloroprene in support of the Title V minor modification application submitted on December 8, 2015.

Table 3-1 presents estimated emission rates of chloroprene and the comparison guideline for chloroprene established for the purposes of this modeling effort. In correspondence received from the LDEQ dated May 27, 2016, the LDEQ stated that an annual average standard for chloroprene of 0.2 $\mu g/m^3$ on an annual

average basis should be used for this modeling effort based on the 2010 Integrated Risk Information System (IRIS) inhalation Unit Risk Estimate (URE) published in December 2015. However, based on subsequent discussions, the LDEQ is allowing an annual average comparison guideline of 20 µg/m3 on an annual average basis for this modeling based on the reference concentration for inhalation exposure (RfC) for non-cancer risks based on the 2010 IRIS Toxicological Review of Chloroprene. These emissions reflect the total proposed chloroprene emissions at the facility.

Table 3-1
Total TAP Emissions, MER, and Comparison Guideline

Pollutant	Emission Rate[1] (lb/yr)	MER (lb/yr)	Class	Annual Average Comparison Guideline (µg/m^3)[2] Annual avg.
Chloroprene	403,580	2,700	II	20

[1] Emission rate is for the Pontchartrain Site and includes chloroprene emissions from the HCl Recovery Unit as well as the Neoprene Unit and Chloroprene Unit.

[2] An annual average comparison guideline of 0.2 µg/m^3 was stated in the correspondence from the LDEQ to DPE dated May 27, 2016. However, based on discussions with the LDEQ on June 13, 2016, LDEQ is allowing modeling be conducted against the RfC of 20 µg/m^3.

4.0 EMISSION SOURCES

Pollutant emission rates, stack parameters, and operating scenarios will be consistent with the facility's existing permit and the application associated with the proposed modification. The comparison guideline for chloroprene is calculated as an annual average therefore all existing emission sources will be included at average hourly permitted emissions levels and all modified sources will be included at average hourly proposed emission rates.

Fugitives will either be modeled as pseudo-point sources with a stack diameter of 1 meter (m), an exit velocity of 0.001 meters per second (m/s), an expected source temperature (i.e., 100˚F), and an expected release height; or as area sources using a release height of 1 m and using dimensions consistent with the facility's existing permit.

Actual or proposed stack heights will be used for vertical stacks, as none of the stack heights exceed the Good Engineering Practice (GEP) stack height or 65 meters (213.3 feet). Non-regular stacks (*e.g.,* stacks with rain caps or horizontal discharge) will be modeled as pseudo-point sources using the parameters provided in the LDEQ modeling guidelines. Instead of using actual diameter and flow, a stack diameter of 1 m and an exit velocity of 0.001 m/s will be assigned.

5.0 AIR DISPERSION MODEL

The American Meteorological Society / Environmental Protection Agency Regulatory Model (AERMOD) model will be used for the TAP modeling. AERMOD is an EPA-approved steady-state Gaussian plume model capable of modeling

multiple sources in complex terrain. The model is currently used for most industrial sources and is the appropriate model for this analysis. The analysis will use the regulatory default option.

The site location map, **Figure 1**, includes the topography of the surrounding area. Based on the site topography, flat terrain will be used. No flagpole receptors will be used (*i.e.,* receptor heights are set at zero).

AERMAP will be used to calculate the base elevations of emission sources, buildings, tanks, and receptors. USGS Digital Elevation Models (DEMs) will be used to process the elevation data.

6.0 BUILDING WAKE EFFECTS (DOWNWASH)

Source proximities will be evaluated with respect to nearby structures to determine whether or not the stack emissions might be affected by the turbulent wake of structures and leading to downwash of the plume. Although it is expected that the building wake will have no effect on dispersion from tall stacks, building wake effect is expected for the other sources at the plant. Therefore, building downwash will be included in this analysis.

EPA's Building Profile Input Processor (BPIP) program will be used to evaluate building downwash parameters and the dominant downwash structure associated with each emission source.

BPIP uses GEP stack heights to determine building downwash effects. Downwash effects are limited to stacks located within a 5L radius, where L is the lesser dimension of the structure (height or the maximum projected width), of a structure. The Schulman-Scire direction-specific downwash technique will be applied to stacks having a height less than or equal to H + 1.5L, where H is the structure height. The proper height and width dimensions will be determined using current EPA guidance.

7.0 RECEPTOR GRID

The receptors will be set on a Cartesian grid as follows:

- At 100 meter spacing from 0 to 1 kilometers
- At 250 meter spacing from 1 to 3 kilometers
- At 500 meter spacing from 3 to 5 kilometers
- At 1 kilometer spacing from 5 to 10 kilometers

8.0 METEOROLOGICAL DATA

The Pontchartrain Site is located near New Orleans, Louisiana. The New Orleans surface and Slidell upper air National Weather Service Station meteorological data for the years 2011 through 2015, as necessary, will be used for this analysis. The anemometer height is ten (10) meters.

9.0 MODELING ANALYSIS FOR TOXIC AIR POLLUTANTS

The applicable pollutants are shown in Table 3-1 and will be modeled using the AERMOD model with the appropriate meteorological data for corresponding averaging times. The modeling procedure is described as follows:

Step 1. Perform an analysis using the most recent meteorological data year (2015). If all receptors outside of the property line have modeled concentrations less than 7.5% of the comparison guideline established for this modeling effort, no further analysis will be required. Otherwise, proceed to Step 2.

Step 2. Perform an analysis including other sources within the Area of Inclusion (AOI) emitting identical TAP. The AOI is defined as a circle with a radius of the most distant receptor with a concentration 7.5% of the comparison guideline established for this modeling effort or greater. The AOI radius should not exceed 50 kilometers. Depending upon the radius length, the AOI may not include any additional sources.

If the Pontchartrain Site maximum impact is between 7.5% and 75% of the comparison guideline established for this modeling effort, only the one year of meteorological data (2015) is required for modeling the facility and sources within the AOI. If the facility maximum impact exceeds 75% of t the comparison guideline established for this modeling effort, modeling the Pontchartrain Site and the sources within the AOI with four additional meteorological years of data (2011 through 2015) will be required.

Once the AOI is determined, a nearby source inventory will be requested from the LDEQ. For any sources missing stack parameter data or with data entered as zero, pseudo-point source parameters will be used. As provided in the provided inventory, mobile and other background sources may also be included. Per the LDEQ Modeling Guideline, actual emission rates will be modeled for sources within the AOI along with DPE's allowable emissions.

If all receptors within the AOI have modeled concentrations less than the comparison guideline established for this modeling effort for every year, then further analysis is not required. If any receptor within the AOI has a modeled concentration greater than the comparison guideline established for this modeling effort for any year, proceed to Step 3.

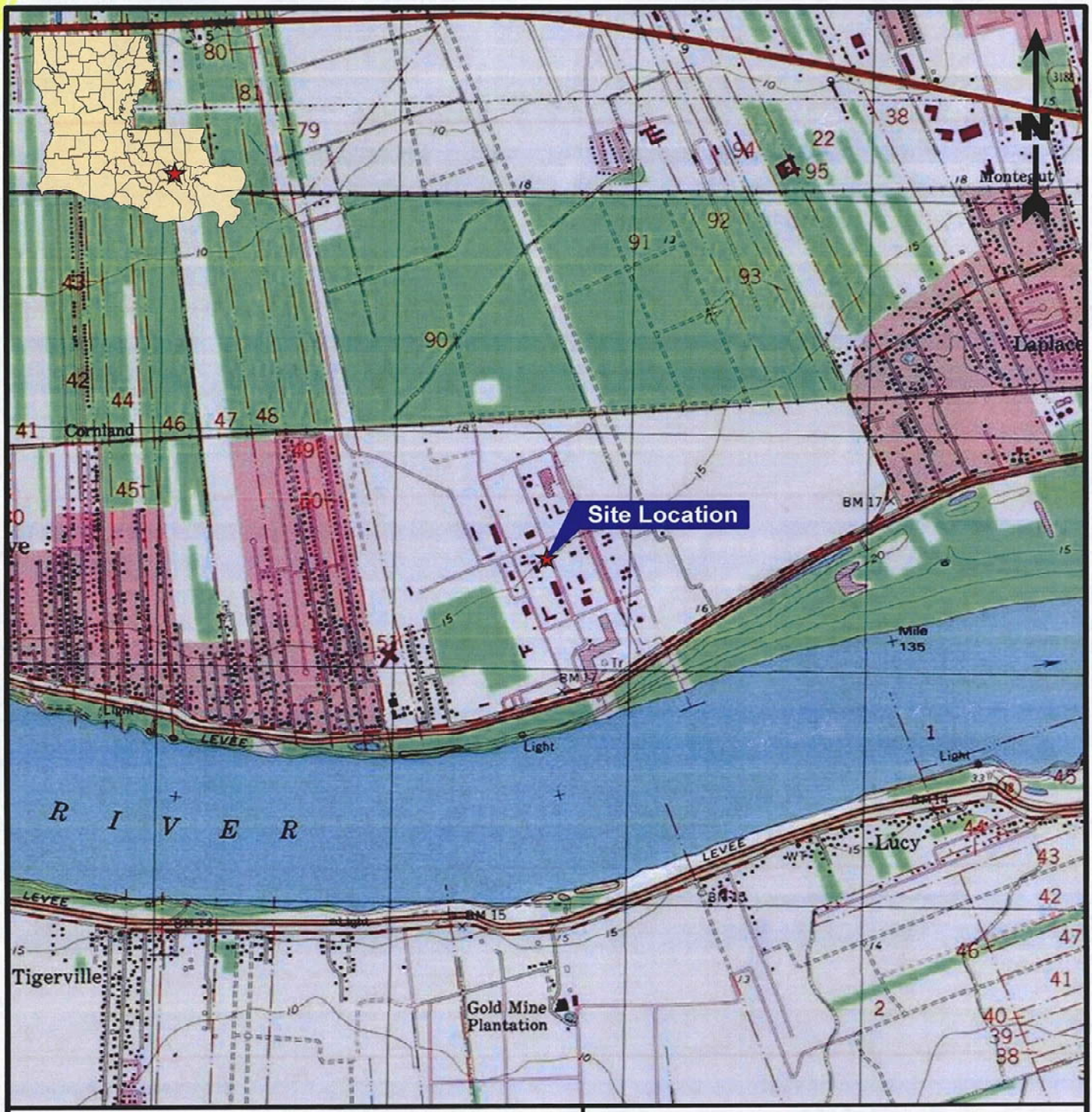
Step 3. A USGS map with isopleths demonstrating receptors at 75% and 100% of the comparison guideline established for this modeling effort will be included with a modeling report summarizing the modeling approach and results.

10.0 MODELING RESULTS

A modeling report will be prepared to summarize the modeling approach and results. The report will include the results from the TAP analysis discussed in **Section 9.0**. Modeling computer files (input files, list files, and met files) will be copied to a compact disc and attached to the modeling report. Plots will be included to show the locations of the maximum ambient impacts relative to the plant, as appropriate.

FIGURE 1

SITE LOCATION MAP



2,000 1,000 0 2,000 Feet

Legend

★ Site Location

Reference

Base map comprised of U.S.G.S. 7.5 minute topographic map, "Reserve, LA".

Site Location Map

TAPs Modeling
LaPlace, St. John the Baptist Parish, Louisiana

Denka Performance Elastomers LLC
Pontchartrain Site

PROVIDENCE

Drawn By	LMM	04/12/16
Checked By	CMM	04/12/16
Approved By	MHF	04/12/16

Project Number 1132-001
Drawing Number 1132-001-A001
1 Figure

Providence Engineering and Environmental Group LLC