IA

Scanning Batch Sheet

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972

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RENAPP

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SCANNED
JAN 05 2022
QUALITY CHECK

Division for Air Quality

300 Sower Boulevard

Frankfort, KY 40601

(502) 564-3999

DEP7007AI

Administrative Information

- ✓ Section AI.1: Source Information
- ✓ Section AI.2: Applicant Information
- ✓ Section AI.3: Owner Information
- ✓ Section AI.4: Type of Application
- ✓ Section AI.5: Other Required Information
- ✓ Section AI.6: Signature Block
- ✓ Section AI.7: Notes, Comments, and Explanations

Additional Documentation

___ Additional Documentation attached

Source Name: Owensboro Specialty Polymers Inc.

KY EIS (AFS) #: 21- 059-00155

Permit #: F-17-032

Agency Interest (AI) ID: 972

Date:

Section AI.1: Source Information

Physical Location Address:	**Street:**	5529 HWY. 2830				
	City:	Owensboro	**County:**	Daviess	**Zip Code:**	42303
Mailing Address:	**Street or P.O. Box:**	5529 HWY. 2830				
	City:	Owensboro	**State:**	Kentucky	**Zip Code:**	42303

Standard Coordinates for Source Physical Location

Longitude: 87.02.58 (decimal degrees) **Latitude:** 37.48.38 (decimal degrees)

Primary (NAICS) Category: Plastics Materials and Resins Manufacturing **Primary NAICS #:** 325211

Classification (SIC) Category: Plastics Materials and resins **Primary SIC #:** 2821

Briefly discuss the type of business conducted at this site: Manufacturing of latex polymers for food packaging, sealents, adhesives.

Description of Area Surrounding Source: ☑ Rural Area ☐ Industrial Park ☐ Residential Area ☐ Urban Area ☐ Industrial Area ☐ Commercial Area

Is any part of the source located on federal land? ☐ Yes ☑ No

Number of Employees: 40

Approximate distance to nearest residence or commercial property: 1000 ft **Property Area:** 9.1 acres **Is this source portable?** ☐ Yes ☑ No

What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?

NPDES/KPDES:	☑ Currently Hold	☐ Need	☐ N/A
Solid Waste:	☐ Currently Hold	☐ Need	☑ N/A
RCRA:	☑ Currently Hold	☐ Need	☐ N/A
UST:	☐ Currently Hold	☐ Need	☑ N/A

Type of Regulated Waste Activity:
☐ Mixed Waste Generator ☑ Generator ☐ Recycler ☐ Other: _____
☐ U.S. Importer of Hazardous Waste ☐ Transporter ☐ Treatment/Storage/Disposal Facility ☐ N/A

Section AI.2: Applicant Information

Applicant Name: Owensboro Specialty Polymers Inc.

Title: (if individual)

Mailing Address: **Street or P.O. Box:** 5529 highway 2830

City: Owensboro **State:** Kentucky **Zip Code:** 42303

Email: (if individual)

Phone: 270-663-1416

Technical Contact

Name: Barry Sparks

Title: Enviromental Specialist

Mailing Address: **Street or P.O. Box:** 5529 highway 2830

City: Owensboro **State:** Kentucky **Zip Code:** 42303

Email: Barry.Sparks@Milliken.com

Phone: 270-663-1422

Air Permit Contact for Source

Name: Barry Sparks

Title: Enviromental Specialist

Mailing Address: **Street or P.O. Box:** 5529 highway 2830

City: Owensboro **State:** Kentucky **Zip Code:** 42303

Email: Barry.Sparks@Milliken.com

Phone: 270-663-1422

Section AI.3: Owner Information

☑ **Owner same as applicant**

Name: _____

Title: _____

Mailing Address: **Street or P.O. Box:** _____

City: _____ **State:** _____ **Zip Code:** _____

Email: _____

Phone: _____

List names of owners and officers of the company who have an interest in the company of 5% or more.

Name	Position

Section AI.4: Type of Application

Current Status: ☐ Title V ☐ Conditional Major ☑ State-Origin ☐ General Permit ☐ Registration ☐ None

Requested Action: *(check all that apply)*

☐	Name Change	☐	Initial Registration	☐	Significant Revision	☐	Administrative Permit Amendment
☑	Renewal Permit	☐	Revised Registration	☐	Minor Revision	☐	Initial Source-wide OperatingPermit
☐	502(b)(10)Chang	☐	Extension Request	☐	Addition of New Facility	☐	Portable Plant Relocation Notice
☐	Revision	☐	Off Permit Change	☐	Landfill Alternate Compliance Submittal	☐	Modification of Existing Facilities
☐	Ownership Chang	☐	Closure				

Requested Status: ☐ Title ☐ Conditional Major ☑ State-Origin ☐ PSD ☐ NSR ☐ Other: _____

Is the source requesting a limitation of potential emissions? ☐ Yes ☑ No

Pollutant:	Requested Limit:	Pollutant:	Requested Limit:
☐ Particulate Matter		☐ Single HAP	
☐ Volatile Organic Compounds (VOC)		☐ Combined HAPs	
☐ Carbon Monoxide		☐ Air Toxics (40 CFR 68, Subpart F)	
☐ Nitrogen Oxides		☐ Carbon Dioxide	
☐ Sulfur Dioxide		☐ Greenhouse Gases (GHG)	
☐ Lead		☐ Other	

For New Construction:

Proposed Start Date of Construction: *(MM/YYYY)* _____ **Proposed Operation Start-Up Date:** *(MM/YYYY)* _____

For Modifications:

Proposed Start Date of Modification: *(MM/YYYY)* _____ **Proposed Operation Start-Up Date:** *(MM/YYYY)* _____

Applicant is seeking coverage under a permit shield. ☐ **Yes** ☑ **No**

Identify any non-applicable requirements for which permit shield is sought on a separate attachment to the application.

Section AI.5 Other Required Information

Indicate the documents attached as part of this application:

- ☐ DEP7007A Indirect Heat Exchangers and Turbines
- ☐ DEP7007B Manufacturing or Processing Operations
- ☐ DEP7007C Incinerators and Waste Burners
- ☐ DEP7007F Episode Standby Plan
- ☐ DEP7007J Volatile Liquid Storage
- ☐ DEP7007K Surface Coating or Printing Operations
- ☐ DEP7007L Mineral Processes
- ☐ DEP7007M Metal Cleaning Degreasers
- ☐ DEP7007N Source Emissions Profile
- ☐ DEP7007P Perchloroethylene Dry Cleaning Systems
- ☐ DEP7007R Emission Offset Credit
- ☐ DEP7007S Service Stations
- ☐ DEP7007T Metal Plating and Surface Treatment Operations
- ☐ DEP7007V Applicable Requirements and Compliance Activities
- ☐ DEP7007Y Good Engineering Practice and Stack Height Determination
- ☐ DEP7007AA Compliance Schedule for Non-complying Emission Units
- ☐ DEP7007BB Certified Progress Report
- ☐ DEP7007CC Compliance Certification
- ☐ DEP7007DD Insignificant Activities
- ☐ DEP7007EE Internal Combustion Engines
- ☐ DEP7007FF Secondary Aluminum Processing
- ☐ DEP7007GG Control Equipment
- ☐ DEP7007HH Haul Roads
- ☐ Confidentiality Claim
- ☐ Ownership Change Form
- ☐ Secretary of State Certificate
- ☐ Flowcharts or diagrams depicting process
- ☐ Digital Line Graphs (DLG) files of buldings, roads, etc.
- ☐ Site Map
- ☐ Map or drawing depicting location of facility
- ☐ Safety Data Sheet (SDS)
- ☐ Emergency Response Plan
- ☐ Other: _____

Section AI.6: Signature Block

I, the undersigned, hereby certify under penalty of law, that I am a responsible official*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.

[signature]	12/15/2021
Authorized Signature	**Date**
David Beets	Plant Manager
Type or Printed Name of Signatory	**Title of Signatory**

*Responsible official as defined by 401 KAR 52:001.

Section AI.7: Notes, Comments, and Explanations

From: Barry Sparks
To: Patil, Durga D (EEC)
Cc: Scott Goldblatt
Subject: Permit Questions
Date: Wednesday, February 12, 2025 11:26:15 AM
Attachments: EU 18 Emergency Generator Emissions Kenvirons 2025.xlsx
List of Non-Applicable Requirements permit 2025.docx

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1. Patil

I am responding back to the questions that you sent, hope you are having a good day as the weather is still quite gloomy. Let me know if there are any other questions. Thanks and have a good day.

1. Details of the diesel fired emergency generator 423 HP. I do not have the emissions profile in the database. Please provide the hourly fuel usage, manufacture date and installation date of the generator and emission profile based on 500 hours of operation.

Hourly Fuel Usage – 21 gallons per hour
Manufacture Date – 2005
Installation Date – 2005
Emissions – Please refer to attached spreadsheet.

2. With regards of the Raw Material Tank MMA 512, please revisit the applicability of Kb. NSPS Kb has been updated recently and has many alternate compliance options if NSPS is indeed applicable to EU 16. Please provide the capacity of the tank, along with throughput and the vapor pressure of the Methyl methacrylate being stored in the tank, the last MSDS sheet was submitted in 2006.

Since the MMA Raw Material Tank is greater than 75 m^3 and less than 151 m^3 and constructed after July 23, 1984 but before October 4, 2023, the tank is technically subject to NSPS Subpart Kb. However, as shown in the attached spreadsheet, the maximum true vapor pressure is less than 15 kPa. Therefore, no specific requirements under NSPS Kb apply to EU 16.

3. I have found applications with permit shield request in the past but no attachment with the non-applicable regulations for which permit shield is being requested, please let me know if permit shield is being requested and for which regulations and the justification for those regulations being non-applicable.

The source is formally requesting a permit shield, and the non-applicable regulations are presented in the attached Word document. These regulations are non-applicable to the facility based on several factors including, but not limited to, (a) being an area source of HAPs, (b) not meeting the definitions associated with applicability within these regulations, (c) not processing or emitting specific chemicals listed within these regulations, (d) not falling within the applicable construction or operation commencement dates within these regulations, and (e) qualifying for a specific exemption from these regulations. We did not attempt to list all regulations that were obviously non-applicable (for example, regulations applying to utilities, coke ovens, and others applicable to different source categories), but rather those that apply to chemical manufacturing sources and related sources.

Barry Sparks
Owensboro Specialty Polymers Inc. a Milliken Company
Office: 270-663-1422
Cell: 270-315-8056

Owensboro Specialty Polymers, Inc.
List of Non-Applicable Requirements for Conditional Major Air Permit Renewal Application

- 40 CFR 60, Subpart K - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978
- 40 CFR 60, Subpart Ka - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984
- 40 CFR 60, Subpart Kc - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023
- 40 CFR 60, Subpart VV – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023
- 40 CFR 60, Subpart VVa – Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, and on or Before April 25, 2023
- 40 CFR 60, Subpart VVb - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023
- 40 CFR 60, Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
- 40 CFR 60, Subpart RRR - Subpart RRR—Standards of Performance for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes After June 29, 1990, and on or Before April 25, 2023
- 40 CFR 60, Subpart RRRa - Standards of Performance for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023
- 40 CFR 63, Subpart A – General Provisions
- 40 CFR 63, Subpart G - National Emission Standards for Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater
- 40 CFR 63, Subpart H - National Emission Standards for Hazardous Air Pollutants for Equipment Leaks and Fenceline Monitoring for All Emission Sources
- 40 CFR 63, Subpart I - National Emission Standards for Hazardous Air Pollutants for Certain Processes Subject to the Negotiated Regulation for Equipment Leaks
- 40 CFR 63, Subpart J - National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production

- 40 CFR 63, Subpart U - National Emission Standards for Hazardous Air Pollutant Emissions: Group I Polymers and Resins
- 40 CFR 63, Subpart PP - National Emission Standards for Containers
- 40 CFR 63, Subpart QQ - National Emission Standards for Surface Impoundments
- 40 CFR 63, Subpart RR - National Emission Standards for Individual Drain Systems
- 40 CFR 63, Subpart SS - National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or a Process
- 40 CFR 63, Subpart TT - National Emission Standards for Equipment Leaks—Control Level 1
- 40 CFR 63, Subpart UU - National Emission Standards for Equipment Leaks—Control Level 2 Standards
- 40 CFR 63, Subpart VV - National Emission Standards for Oil-Water Separators and Organic-Water Separators
- 40 CFR 63, Subpart WW - National Emission Standards for Storage Vessels (Tanks)—Control Level 2
- 40 CFR 63, Subpart JJJ - National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
- 40 CFR 63, Subpart FFFF - National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing
- 40 CFR 63, Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters
- 40 CFR 63, Subpart DDDDDD - National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production Area Sources
- 40 CFR 63, Subpart JJJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources
- 40 CFR 63, Subpart VVVVVV - National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources
- 40 CFR 63, Subpart BBBBBBB - National Emission Standards for Hazardous Air Pollutants for Area Sources: Chemical Preparations Industry
- 40 CFR 63, Subpart HHHHHHH - National Emission Standards for Hazardous Air Pollutant Emissions for Polyvinyl Chloride and Copolymers Production
- 401 KAR 63:015 - Flares

Burberry, Stephanie (EEC)

From: CHRIS WATHEN <CWATHEN@kenvirons.com>
Sent: Monday, April 21, 2025 4:44 PM
To: Patil, Durga D (EEC)
Cc: Barry Sparks; Ross, Dakota D (EEC)
Subject: Re: Follow-Up Questions for OSP Modeling Report
Attachments: Owensboro Specialty Polymers AI 972 Air Toxics Modeling Report Revised.pdf; Emissions Breakdown by Process Unit - Rev1.xlsx

Durga,

Please see below our responses to the remaining two questions after Barry answered the PVA process question. I've attached a revised emissions breakdown spreadsheet and a revised modeling report (only Table 3 of the modeling report has been revised as specified below). As always, please reach out if you have any questions or need anything additional. Thanks!

KENVIRONS
Christopher P. Wathen, P.E.
Vice President
770 Wilkinson Boulevard | Frankfort, KY 40601
Office (502) 695-4357 | Cell (502) 592-2617
Celebrating 50 Years! (1975-2025)

From: Patil, Durga D (EEC)
Sent: Wednesday, April 16, 2025 11:29 AM
To: CHRIS WATHEN
Cc: Barry Sparks; Ross, Dakota D (EEC)
Subject: RE: Follow-Up Questions for OSP Modeling Report

Good morning Chris:

I have gone through the excel data sheet submitted and compared the PTE of emissions from the initial F permit or Title V permit applications.
While in most cases the PTE are changed slightly or there is an increase in PTE(resulting in an update to the KYEIS), there are instances where the PTE has reduced as shown below:
EU 009 Daran reactor train:
PTE of Methyl Methacrylate was 3.002 tpy in the F permit application and is now 2.47 tpy

PTE of Vinylidene chloride was 15.02 in the initial F permit application and is now 12.035 tpy.
Please confirm that the PTE is to be reduced in the KYEIS and the reason for this change.

The spreadsheet we sent you separated emissions associated with vent ID VT-1308-1 to reflect emissions separately from EU08, EU09, and EU10 since that vent is shared within those three emission units. That was based on your question regarding that vent ID in the modeling report, specifically in Table 3 of the modeling report. We realized that there is another vent that is shared between EU08 and EU09, vent ID VT-1301-1 that we did not break down the emissions from that vent between the two emission units. The result is that Methyl Methacrylate and Vinylidene Chloride emissions were higher than they should have been for EU08 and lower than they should have been for EU09 in the spreadsheet that was sent to you. The attached revised spreadsheet with the emissions from VT-1301-1 separated between EU08 and EU09 shows potential emissions of Methyl Methacrylate of 3.00 tons/year and potential emissions of Vinylidene Chloride of 15.029 tons/year for EU09. Therefore, no changes should be necessary for EU09 potential emissions. Table 3 of the modeling report (revised version attached) has been updated to reflect that VT-1301-1 has emissions from both EU08 and EU09.

<u>EU 010Daran reactor train:</u>
PTE of Acrylic acid was 0.0241 tpy in the F permit application and is now 0.0199 tpy
Please confirm that the PTE is to be reduced in the KYEIS and the reason for this change.

For Acrylic Acid emissions from EU10, the Conditional Major application we referenced (APE20060003) shows potential emissions of 0.02 tons/year instead of 0.024 tons/year, equivalent to what we modeled. Accordingly, we don't believe a change in the EIS is necessary.

<u>EU 013 PVA process PVA reactor train R-157</u>
There is no PTE listed in the OSP modeling performed and the writeup states that the equipment is no longer in service. If so, do you want me to remove it from the permit and KYEIS? If the unit is idled and the facility may use it in the future, then I have to remodel with an additional 10.55 tpy of Vinyl acetate, which is the PTE in the initial F application.

Please let me know.
Thanks
Durga Patil

From: CHRIS WATHEN <CWATHEN@kenvirons.com>
Sent: Thursday, April 10, 2025 11:55 AM
To: Patil, Durga D (EEC) <Durga.Patil@ky.gov>
Cc: Barry Sparks <Barry.Sparks@Milliken.com>
Subject: Follow-Up Questions for OSP Modeling Report

Durga,

I apologize for the delay in responding from our conversation last Friday regarding the Owensboro Specialty Polymers modeling report but the flooding pushed us back a few days from being able to access our office. As discussed, I have attached a spreadsheet showing the breakdown of what was modeled, which shows potential emissions in tons per year for each HAP/air toxic compound from each process unit and each modeled vent within each process unit.

Regarding the PVA process line, that process line is currently out of service but there is still equipment on-site. If the process becomes operational again, vinyl acetate is no longer used at the facility and there are no other HAPs/air toxics that would be emitted from that process.

Please let me know if you have any questions. Thanks!

KENVIRONS

Christopher P. Wathen, P.E.
Vice President
770 Wilkinson Boulevard | Frankfort, KY 40601
Office (502) 695-4357 | Cell (502) 592-2617
Celebrating 50 Years! (1975-2025)

Emissions Unit	Process	Vent ID	Description	Acrylic Acid Emissions tons/year	Acrylonitrile Emissions tons/year	Methyl Acrylate Emissions tons/year	Methyl Methacrylate Emissions tons/yhear	Vinylidene Chloride Emissions tons/year	Cumene Emissions tons/yr	HCl Emissions tons/yr	Xylene Emissions tons/yr
08	DARAN	VT 1301-1	Manual/Emergency vent on tanks V-201 and V-211	0.0151		0.281	0.566	2.839			
08	DARAN	VT-1308-1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	0.0152		0.362	0.573	2.873			
08	DARAN	VT-1308-3	Steam Ejector (Vacuum) Vent for S200 (A Stripper)	0.0397		0.740	1.491	7.478			
09	DARAN	VT 1301-1	Manual/Emergency vent on tanks V-201 and V-211	0.0143		0.359	0.534	2.677			
09	DARAN	VT-1301-3	Manual/Emergency Vent on R210	0.000054		0.0014	0.0020	0.0101			
09	DARAN	VT-1308-1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	0.0144		0.463	0.541	2.709			
09	DARAN	VT-1308-4	Steam Ejector (Vacuum) Vent for S210 (B Stripper)	0.0513		1.293	1.923	9.633			
10	DARAN	VT-1301-4	Manual/Emergency Vent on V221	0.0032	0.0080		0.138	0.690			
10	DARAN	VT-1301-5	Manual/Emergency Vent on R220	0.00075	0.0019		0.0323	0.161			
10	DARAN	VT-1308-1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	0.0024	0.0061		0.105	0.526			
10	DARAN	VT-1308-5	Steam Ejector (Vacuum) Vent for S220 (C Stripper)	0.0136	0.034		0.585	2.923			
11	DARAN	VT-1304-1	Steam Ejector Vent for R230	0.000039		0.303	0.000039	0.000039			
12	SPECIALTY R-1117	VT-6001-2	Vent on R650		0.67	2.09					
14	SPECIALTY R-1117	VT-1604-1	Vent on R460		1.27	1.15					
16	RAW MATERIAL TANKS	VT-3000-1	Methyl acrylate storage tank (V-521)			0.40					
16	RAW MATERIAL TANKS	VT-3000-11	Acrylonitrile storage tank (V-511)		0.163						
16	RAW MATERIAL TANKS	VT-3000-5	Methyl methacrylate storage tank (V-512)				0.448				
17	WW TREATMENT		Wastewater Treatment Emissions	0.0194	0.052	0.166	0.421	2.295			
18	DARAN	VT-1101-1	Steam out Vent from R51 (VT-1104-12) to Dilution Blower	0.000026			0.000026	0.000026			
			Plantwide Fugitives	0.0057	0.695	0.338	0.117	0.517			
			Product Storage	0.00058			0.0053	0.078			
21	N-Serve	EP-21	Aromatic 100 Storage						0.00073		0.0015
22	N-Serve	EP-22	Xylene Storage Tank								0.0369
24	N-Serve	EP-24	Blend Vessel						0.0024	0.0014	0.0354
	N-Serve		Fugitives						0.00393	0.0183	0.16

OWENSBORO SPECIALTY POLYMERS, INC.

HAP/AIR TOXIC MODELING REPORT

Prepared For:

OWENSBORO SPECIALTY POLYMERS, INC.

Prepared By:

Kenvirons, LLC

KENVIRONS

Celebrating 50 Years, 1975-2025

Project Number 2025038

March 2025

Introduction

Owensboro Specialty Polymers (OSP), located in Daviess County in Owensboro, Kentucky, is a manufacturer of specialty polymers and holds a current air permit in Kentucky, Conditional Major Permit No. F-17-032. A timely permit renewal application was submitted by the facility to the Kentucky Division for Air Quality (KDAQ), and during the course of the permit review process KDAQ requested that OSP provide an analysis of ambient air impacts of Hazardous Air Pollutants (HAPs) and non-HAP air toxic compounds to demonstrate that emissions from the facility will not result in adverse exposure to the residential population surrounding the plant site.

In order to perform this analysis, dispersion modeling for emissions of HAPs/air toxics at OSP was performed by Kenvirons, LLC. In order to perform this modeling, it was necessary to employ an EPA-approved air quality dispersion model.

Since some of the terrain within the modeling domain is above the stack heights at the plant, the terrain is classified as complex, and as such, a model appropriate for use in complex terrain must be used. In accordance with the Guideline on Air Quality Models (GAQM, Appendix W to 40 CFR Part 51), the appropriate model for application to this domain is the EPA AERMOD dispersion model. For this modeling analysis, the latest version of the AERMOD model (version 24142) was used for predicting ambient air impacts for each modeled pollutant. The specific model user interface used for the modeling was AERMOD-View by Lakes Environmental (Ontario, Canada).

Application of the AERMOD model to evaluate air quality impacts from OSP requires setting model control options, processing the appropriate meteorological and terrain data, setting receptor grids, determining background concentrations, inputting source emission and stack parameter data, and generating output necessary for the proper impact evaluation.

AERMOD Model Options

For all modeling runs conducted for the evaluation of the plant's air quality impacts, the regulatory default option in AERMOD was selected.

In order to include building wake effects, the Building Profile Input Program, PRIME version (BPIP-PRIME, version 04274) was used to calculate downwash parameters for the modeled emission sources by using building, structure, and tank dimensions and heights relative to the modeled sources. None of the point sources exceed Good Engineering Practice (GEP) stack heights.

A necessary step in preparing a modeling exercise with AERMOD is the proper classification of land use in the immediate vicinity of the plant such that the appropriate dispersion coefficients are employed (urban versus rural). As specified in Section 5.1 of the AERMOD Implementation Guide and in Section 7.2.1.1.b of the GAQM, land use within a 3 km radius around the plant property is analyzed to determine the percentage of each of the land use categories within the 3 km area. The Auer land use method was employed to determine the percentage of each of the land use categories listed in the National Land Cover Database within 3 km of the plant. If land use types from the Developed, Low Intensity, Developed, Medium Intensity, and Developed, High Intensity categories exceed 50% or more of the land use categories within the 3 km area, then urban dispersion coefficients must be used. If the land use types from those listed categories is less than 50%, then rural dispersion coefficients must be used. In order to determine these percentages, an online tool from the South Carolina Department of

Environmental Services (SCDES) was used by specifying the center of the plant location in latitude-longitude and specifying a 3 km radius around those coordinates[1]. This tool then calculated the percentages of each of the land use categories from the Land Cover Database present in the area. Table 1 shows the percentage of each of the land use categories present in the area. As this table shows, 87.5% of the land use within the 3-km radius of the plant is classified as rural. Therefore, rural dispersion coefficients were used for all AERMOD runs.

Table 1 - Land Use within 3 km of OSP

Landuse	Area(m^2)	Percent	Classification
Open Water	5,481,900	19.4	Rural
Developed Open Space	1,354,500	4.8	Rural
Developed Low Intensity	1,326,600	4.7	Urban
Developed Medium Intensity	1,276,200	4.5	Urban
Developed High Intensity	924,300	3.3	Urban
Barren Land	87,300	0.3	Rural
Deciduous Forest	2,609,100	9.2	Rural
Evergreen Forest	16,200	0.1	Rural
Mixed Forest	293,400	1	Rural
Shrub Scrub	3,600	0	Rural
Herbaceous	9,000	0	Rural
Hay Pasture	1,993,500	7.1	Rural
Cultivated Crops	12,272,400	43.5	Rural
Woody Wetlands	498,600	1.8	Rural
Total Urban		**12.5%**	
Total Rural		**87.5%**	

Meteorological Data

Pre-processed AERMOD-ready meteorological data required for the modeling is provided by the Kentucky Division for Air Quality (KDAQ). The Division recommends which surface stations and upper air stations should be selected based on the county in which the source being modeled is located. Since OSP is located in Daviess County, Kentucky, KDAQ recommends the following surface and upper air stations for modeling sources in that location[2]:

Surface Station: Evansville, Indiana
Upper Air Station: Nashville, Tennessee

The most recent five years of available meteorological data from these stations, which cover the period from 2019 through 2023, was used for the modeling.

[1] https://gis.dhec.sc.gov/landcover/
[2] https://eec.ky.gov/Environmental-Protection/Air/Pages/Modeling%20and%20Meteorology.aspx

Terrain Processing and Receptor Input

Receptor coordinates, elevations, and hill height scales were produced by the latest version of the AERMAP terrain processing program for input into AERMOD. USGS Digital Elevation Models (DEMs) were utilized by AERMAP to determine the terrain elevation at each receptor, the hill height scales, and source elevations (if necessary). The DEMs were obtained from the USGS National Elevation Database (NED) in GeoTIFF format, with a resolution of 1/3 arc second (approximately 10 meters) and extend beyond the modeling domain. All source and receptor coordinates were specified in terms of UTM coordinates in NAD83, with UTM Zone 16 set as the base zone for the modeling domain.

The receptor grid used for the assessment of impacts from OSP consists of a Cartesian receptor grid out to 5 km from the plant site, with receptors placed at 100 meter intervals. Modeling was conducted using the Tier 2 procedures described in EPA's Air Toxics Risk Assessment Reference Library, Volume 2[3]. In accordance with the EPA guidance, The Tier 2 approach shifts from the maximum offsite ambient concentration to the concentrations within Census blocks (i.e., where people actually reside). The nearest residential location to OSP is 1000 meters from the center of the sources of emissions at the plant (See Figure 1). Therefore, only receptors greater than 1000 meters from the plant site were included in the modeling. That procedure provides a conservative approach since most of the area where receptors are 1000 meters away from OSP are not in residential areas.

Source Inputs

In order to complete the modeling setup for air toxics evaluation, it was necessary to identify the emission points and associated subject HAPs/Air Toxic compounds for inclusion in the modeling. Permit F-17-032, Section J identifies the reaction processes and associated vents at the plant. Many of these vents are no longer in service, and many of the vents specified in the permit do not emit HAPs or air toxic compounds or do not have any associated emissions during normal operations. The DAXAD process listed as Emission Point 07 in the permit has been out of service for some time and would require some construction and associated permitting to put that process train back in service. Therefore, DAXAD sources were not included in the modeling. Table 2 lists the vents for each process unit in Section J of the permit and specifies which vents are included in the modeling, which vents are no longer in service at the plant, which vents that are still in service that do not emit HAPs/air toxics, and which vents that are still in service that have no emissions during normal operation. It should be noted that compounds that are not listed in EPA's RSL tables for residential air impacts were not included in the modeling. However, all HAPs emitted by the process units were included in the modeling.

Table 3 shows the potential emissions of HAPs/air toxics from each vent within each of the reaction process units, including raw material storage tank emissions, fugitive emissions and wastewater treatment emissions. All potential emissions from the process units and associated tanks/fugitives were accounted for in the modeling. Table 4 shows potential emissions of HAPs from the emergency generator at the plant, and Table 5 shows potential emissions of HAPs from the recently-permitted natural gas-fired boiler. While the emergency generator and boiler have trivial emissions of HAPs, their emissions were nonetheless included in the modeling using the Multi-Chemical option in the Lakes AERMOD software for those HAPs only emitted by the boiler or emergency generator.

[3] EPA-453-K-04-001B, April 2004


Figure 1
Plant Location with Nearest Residential Location
Legend
1,000 meters
Bobby's Tire and Mechanical
Marathon Gas
INDIANA
Owensboro Specialty Polymers
Ohio River
Nearest Residential Location
Thruston
Dollar General
Yellow Creek Park
Reid's Orchard
Google Earth
3000 ft
N

Table 2 - Sources Included in Modeling

Emission Unit	Vent ID		Description	Include in Modeling?	Notes
EU 07 DAXAD	VT 1501	1	Manual Vent on R360 via Condenser H-R360	No	No longer in service
	VT 1504	1	Manual Vent on R360 via Condenser H-R360	No	No longer in service
	VT 1504	3	Emergency Vent for R360	No	No longer in service
	VT 1504	2	Steam Ejector Vent of R360	No	No longer in service
	VT 1501	3	Vent on 50% Methanol storage tank V304	No	No longer in service
	VT 1501	2	Reboiler of distillation still BO-342 with vent	No	No longer in service
	VT 1504	4	Breather Vent on Distillation Still Condenser (H-D342)	No	No longer in service
	VT 1504	5	Vent on Tank 343 (overhead receiver)	No	No longer in service
	VT 3001	2	Remeth tank (V341)	No	No longer in service
EU 08 DARAN R-200	VT 1301	1	Manual/Emergency vent on tanks V-201 and V-211	Yes	
	VT 1308	1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	Yes	
	None		DESM tank V-205 (open top)	No	Does not emit HAP/air toxics
	None		Vent on continuous catalyst tank A (V203)	No	Does not emit HAP/air toxics
	None	6	SEDAR tank V-207 with vent	No	Does not emit HAP/air toxics
	VT 1301	2	Manual/Emergency Vent on R200		No longer in service
	VT 1308	6	Manual Vent on V241, 242 (PSLT 1 and 2)		No longer in service
	VT 1308	3	Steam Ejector (Vacuum) Vent for S200 (A Stripper)	Yes	
	VT 1308	8	Steam ejector (vacuum) vent for V251, 252, 253, 254 (SLT 1, 2, 3, 4)	No	Does not emit HAP/air toxics
	VT 1308	12	Vents on V251 and V252 (SLT 1 and 2)	No	Does not emit HAP/air toxics
EU 09 DARAN R-210	VT 1301	1	Manual/Emergency vent on tanks V-201 and V-211	Yes	
	VT 1308	1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	Yes	
	None		DESM tank V-205 (open top)	No	Does not emit HAP/air toxics
	VT 1308	11	Vent on continuous catalyst tank B (V213)	No	Does not emit HAP/air toxics
	None	6	SEDAR tank V-207 with vent	No	Does not emit HAP/air toxics
	VT 1301	3	Manual/Emergency Vent on R210	Yes	
	VT 1308	4	Steam Ejector (Vacuum) Vent for S210 (B Stripper)	Yes	
	VT 1308	8	Steam ejector (vacuum) vent for V251, 252, 253, 254 (SLT 1, 2, 3, 4)	No	Does not emit HAP/air toxics
	VT 1308	13	Vents on V253 and V254 (SLT 3 and 4)	No	Does not emit HAP/air toxics
EU 10 DARAN R-220	VT 1301	4	Manual/Emergency Vent on V221	Yes	
	VT 1308	1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	Yes	
	VT 1308	9	Vent on V225 (C DESM tank)	No	Does not emit HAP/air toxics
	None		C continuous catalyst tank V-223	No	Does not emit HAP/air toxics
	None	6	SEDAR tank V-207 with vent	No	Does not emit HAP/air toxics
	VT 1301	5	Manual/Emergency Vent on R220	Yes	
	VT 1308	5	Steam Ejector (Vacuum) Vent for S220 (C Stripper)	Yes	
	VT 1308	2	Manual vent on S220 (C Stripper)	No	No emissions under normal operation
EU 11 DARAN R-230	VT 1104	18	Emergency Vent from Monomer Mix Tank V231	No	No emissions under normal operation
	VT 1104	23	Manual Vent on Monomer Mix Tank V231	No	No emissions under normal operation
	VT 1304	2	Vent on continuous catalyst tank (V233)	No	Does not emit HAP/air toxics
	None	6	SEDAR tank V-207 with vent	No	Does not emit HAP/air toxics
	VT 1301	7	Manual/Emergency Vent on R230	No	No emissions under normal operation
	VT 1304	1	Steam Ejector Vent for R230	Yes	
EU 18 DARAN R-51	VT 1104	2	Steam Ejector Vent for reactor 51	No	No emissions under normal operation
	VT 1104	12	Steam out Vent from R51 to Dilution Blower	Yes	Vents to Dilution Blower VT1101-1
	VT 1104	22	Manual Vent on Monomer Mix Tank V-34	No	No emissions under normal operation
	VT 1104	25	Manual/Emergency Vent from R51	No	No emissions under normal operation
	VT 1104	38	Steamout Vent #3 from R51	No	No longer in service
	None		Vacuum receiver VR-R51 with vent	No	No emissions under normal operation

Table 2 - Sources Included in Modeling

Emission Unit	Vent ID		Description	Include in Modeling?	Notes
EU 12 SPECIALTY R-650	VT 6004	3	Manual Vent on V652 (Monomer Mix Tank)	No	No emissions under normal operation
	VT 6004	1	Continuous feed tank V-653 with vent	No	Does not emit HAP/air toxics
	VT 6004	2	Continuous feed tank V-654 with vent	No	Does not emit HAP/air toxics
	VT 6001	1	Manual Vent on R650	No	No emissions under normal operation
	VT 6001	2	Emergency Vent on R650	Yes	
EU 14 SPECIALTYT R-450	VT 1604	3	Steam ejector vent (to create vacuum on R450, 460 and V451)	No	No longer in service
	VT 1604	1	R450 and R460 Manual Vent	Yes	
	VT 1604	4	Sampling hood vent from R50, 51, 53, 450 and 460	No	No longer in service
	VT 1603	1	Exhaust Fan Vent in Hypol Packaging Area	No	No longer in service
EU 13 PVA R-157	VT 3404	1	Vent on Monomer Mix Tank (V130)	No	No longer in service
	VT 3404	2	Vent on styrene addition tank V130	No	No longer in service
	VT 3404	3	Vent from feed tanks V120, V121	No	No longer in service
	VT 3404	4	Vent on styrene addition tank SB-R157	No	No longer in service
	VT 3404	8	Vent on emulsifier tanks 128 and 129 to exhaust fan	No	No longer in service
	VT 3404	5	Steam Ejector Vent for R157 (through vacuum receiver and condenser)	No	No longer in service
	VT 3401	1	Steam Ejector Vent for R157	Yes	
	VT 3404	6	Manual Vent for Condenser and Vacuum Receiver on R157	No	No longer in service
Tanks	VT 3000	1	Methyl acrylate storage tank (V-521)	Yes	
	VT 3000	2	n-Butyl acrylate storage tank (V-525)	No	Does not emit HAP/air toxics
	VT 3000	3	2-Ethyl hexyl acrylate storage tank (V-522)	No	Does not emit HAP/air toxics
	VT 3000	4	di-n-butyl maleate storage tank (V-514)	No	No longer in service
	VT 3000	5	Methyl methacrylate storage tank (V-512)	Yes	
	VT 3000	6	Methanol storage tank (V-513)*	No	No longer in service
	VT 3000	7	Vinylidene chloride storage tank (V-531)	No	No emissions
	VT 3000	8	Hexylene glycol storage tank (V-516)	No	No longer in service
	VT 3000	9	Ethyl acrylate storage tank (V-515)	No	No longer in service
	VT 3000	10	Styrene storage tank (V-533)	No	No longer in service
	VT 3000	11	Acrylonitrile storage tank (V-511)	Yes	
	VT 3000	12	Vinyl acetate storage tank (V-532)	No	No longer in service

Table 3 - Pollutants and Potential Emissions for Modeling from Process Sources

Emissions Unit	Process	Vent ID	Description	Acrylic Acid Emissions tons/year	Acrylonitrile Emissions tons/year	Methyl Acrylate Emissions tons/year	Methyl Methacrylate Emissions tons/yhear	Vinylidene Chloride Emissions tons/year	Cumene Emissions tons/yr	HCl Emissions tons/yr	Xylene Emissions tons/yr
08, 09	DARAN	VT 1301-1	Manual/Emergency vent on tanks V-201 and V-211	0.0293		0.640	1.100	5.516			
08, 09, 10	DARAN	VT-1308-1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	0.0321	0.0061	0.825	1.219	6.108			
08	DARAN	VT-1308-3	Steam Ejector (Vacuum) Vent for S200 (A Stripper)	0.0397		0.740	1.491	7.478			
09	DARAN	VT-1301-3	Manual/Emergency Vent on R210	0.000054		0.0014	0.00202	0.0101			
09	DARAN	VT-1308-4	Steam Ejector (Vacuum) Vent for S210 (B Stripper)	0.0513		1.293	1.923	9.633			
10	DARAN	VT-1301-4	Manual/Emergency Vent on V221	0.0032	0.0080		0.138	0.690			
10	DARAN	VT-1301-5	Manual/Emergency Vent on R220	0.00075	0.0019		0.0323	0.161			
10	DARAN	VT-1308-5	Steam Ejector (Vacuum) Vent for S220 (C Stripper)	0.0136	0.034		0.585	2.923			
11	DARAN	VT-1304-1	Steam Ejector Vent for R230	0.000039		0.303	0.000039	0.000039			
12	SPECIALTY R-1117	VT-6001-2	Vent on R650		0.67	2.09					
14	SPECIALTY R-1117	VT-1604-1	Vent on R460		1.27	1.15					
16	RAW MATERIAL TANKS	VT-3000-1	Methyl acrylate storage tank (V-521)			0.40					
16	RAW MATERIAL TANKS	VT-3000-11	Acrylonitrile storage tank (V-511)		0.163						
16	RAW MATERIAL TANKS	VT-3000-5	Methyl methacrylate storage tank (V-512)				0.448				
17	WW TREATMENT		Wastewater Treatment Emissions	0.0194	0.052	0.166	0.421	2.295			
18	DARAN	VT-1101-1	Steam out Vent from R51 (VT-1104-12) to Dilution Blower	0.000026			0.000026	0.000026			
			Plantwide Fugitives	0.0057	0.695	0.338	0.117	0.517			
			Product Storage	0.00058			0.0053	0.078			
21	N-Serve	EP-21	Aromatic 100 Storage						0.00073		0.0015
22	N-Serve	EP-22	Xylene Storage Tank								0.0369
24	N-Serve	EP-24	Blend Vessel						0.0024	0.0014	0.0354
	N-Serve		Fugitives						0.00393	0.0183	0.16
Total Modeled Emissions, tons per year				0.20	2.90	7.95	7.48	35.41	0.0070	0.020	0.23

Table 4

Diesel Generator Hazardous Air Pollutant Emissions

Engine Power Rating HP	Pollutant	Emission Factor lb/mgal[1]	Potential Emissions lb/hr	Potential Emissions tons/yr[2]
423	Benzene	1.06E-01	2.23E-03	5.58E-04
	Toluene	3.85E-02	8.08E-04	2.02E-04
Fuel Usage gal/hr	Xylene	2.64E-02	5.55E-04	1.39E-04
	Formaldehyde	1.08E-02	2.27E-04	5.67E-05
21	Acetaldehyde	3.45E-03	7.25E-05	1.81E-05
	Acrolein	1.08E-03	2.27E-05	5.67E-06
	Naphthalene	1.78E-02	3.74E-04	9.35E-05
	Acenaphthylene	1.26E-03	2.66E-05	6.64E-06
	Acenaphthene	6.41E-04	1.35E-05	3.37E-06
	Fluorene	1.75E-03	3.68E-05	9.21E-06
	Phenanthrene	5.59E-03	1.17E-04	2.93E-05
	Anthracene	1.69E-04	3.54E-06	8.85E-07
	Fluoranthene	5.52E-04	1.16E-05	2.90E-06
	Pyrene	5.08E-04	1.07E-05	2.67E-06
	Benz(a)anthracene	8.52E-05	1.79E-06	4.47E-07
	Chrysene	2.10E-04	4.40E-06	1.10E-06
	Benzo(b)fluoranthene	1.52E-04	3.19E-06	7.98E-07
	Benzo(k)fluoranthene	2.99E-05	6.27E-07	1.57E-07
	Benzo(a)pyrene	3.52E-05	7.39E-07	1.85E-07
	Indeno(1,2,3-cd)pyrene	5.67E-05	1.19E-06	2.98E-07
	Dibenze(a,h)anthracene	4.74E-05	9.95E-07	2.49E-07
	Benzo(g,h,l)perylene	7.62E-05	1.60E-06	4.00E-07

[1]Emission Factors from AP-42 Chapter 3.4-3 and 3.4-4, conversion factor of 137,000 Btu/gal.

[2]Maximum of 500 hours per year of operation

Table 5
Natural Gas Boiler Hazardous Air Pollutant Emissions

Natural Gas Usage $mmft^3/hr$	Pollutant	Emission Factor $lb/mmft^3$	Potential Emissions lb/hr	Potential Emissions tons/year
0.021	2-Methylnaphthalene	2.40E-05	5.04E-07	2.21E-06
	3-Methylchloranthrene	1.80E-06	3.78E-08	1.66E-07
	7,12-Dimethylbenz(a)anthracene	1.60E-05	3.36E-07	1.47E-06
	Acenaphthene	1.80E-06	3.78E-08	1.66E-07
	Acenaphthylene	1.80E-06	3.78E-08	1.66E-07
	Anthracene	2.40E-06	5.04E-08	2.21E-07
	Arsenic	2.00E-04	4.20E-06	1.84E-05
	Benz(a)anthracene	1.80E-06	3.78E-08	1.66E-07
	Benzene	2.10E-03	4.41E-05	1.93E-04
	Benzo(a)pyrene	1.20E-06	2.52E-08	1.10E-07
	Benzo(b)fluoranthene	1.80E-06	3.78E-08	1.66E-07
	Benzo(g,h,i)perylene	1.20E-06	2.52E-08	1.10E-07
	Benzo(k)fluoanthene	1.80E-06	3.78E-08	1.66E-07
	Beryllium	1.20E-05	2.52E-07	1.10E-06
	Cadmium	1.10E-03	2.31E-05	1.01E-04
	Chromium	1.40E-03	2.94E-05	1.29E-04
	Chrysene	1.80E-06	3.78E-08	1.66E-07
	Cobalt	8.40E-05	1.76E-06	7.73E-06
	Dibenzo(a,h)anthracene	1.20E-06	2.52E-08	1.10E-07
	Dichlorobenzene	1.20E-03	2.52E-05	1.10E-04
	Fluoranthene	3.00E-06	6.30E-08	2.76E-07
	Fluorene	2.80E-06	5.88E-08	2.58E-07
	Formaldehyde	7.50E-02	1.58E-03	6.90E-03
	Hexane	1.80E+00	3.78E-02	1.66E-01
	Indo(1,2,3-c,d)pyrene	1.80E-06	3.78E-08	1.66E-07
	Lead	5.00E-04	1.05E-05	4.60E-05
	Manganese	3.80E-04	7.98E-06	3.50E-05
	Mercury	2.60E-04	5.46E-06	2.39E-05
	Naphthalene	6.10E-04	1.28E-05	5.61E-05
	Nickel	2.10E-03	4.41E-05	1.93E-04
	Phenanthrene	1.70E-05	3.57E-07	1.56E-06
	Pyrene	5.00E-06	1.05E-07	4.60E-07
	Selenium	2.40E-05	5.04E-07	2.21E-06
	Toluene	3.40E-03	7.14E-05	3.13E-04

Emission Factors from AP-42 Tables 1.4-3 and 1.4-4

Finally, Table 6 presents the coordinates and stack parameters for point sources included in the modeling. Fugitive emissions were modeled as rectangular area sources that encompass raw material storage, process areas, and product storage. Product storage emissions were included in the fugitive emissions. Wastewater treatment emissions were also modeled as a rectangular area source. Figure 2 shows the locations of the modeled sources within the plant.

Modeling Results

Having compiled the necessary data, AERMOD modeling was conducted using potential emissions of each HAP/air toxic compound. The annual averaging period was chosen for each pollutant model run, with the highest predicted impact over the five (5) year of meteorological data reported for comparison with the relevant thresholds.

Once the modeling for each pollutant was completed, the cancer risk for carcinogens and the chronic non-cancer hazard for non-carcinogens were calculated to determine whether emissions of any of the modeled compounds pose a risk or hazard. In order to perform this evaluation, the relevant Inhalation Risk Unit (IUR) values and Reference Concentration (RfC) values from the EPA Regional Screening Level (RSL) Resident Ambient Air Table (TR=1E-06, HQ=1), November 2024, were used.

For those carcinogens with a specified IUR, the risk was calculated as follows:

Risk = Modeled Concentration (ug/m^3) x IUR ($1/ug/m^3$)

If the calculated risk is greater than the IUR, then impacts from the subject pollutant could pose a cancer risk to the exposed population and further analysis/emission reductions could be warranted.

For those pollutants with a specified RfC, the hazard potential was calculated as follows:

Hazard = Modeled Concentration (ug/m^3) / RfC (ug/m^3)

If the calculated hazard potential is greater than the RfC, then impacts from the subject pollutant could pose a noncancer hazard to the exposed population and further analysis/emission reductions could be warranted.

Table 7 presents the results of the modeling showing the maximum annual modeled impacts and the calculated cancer risk and noncancer hazard potential. As these results show, none of the modeled pollutants will pose a cancer risk or hazard potential to the exposed population. These results should be overly conservative since potential emissions were used in the modeling. Owensboro Specialty Polymers is classified as a Conditional Major source of emissions with emission limits for individual HAPs of 9 tons per year each and a total HAP emission limit of 22.5 tons per year. Total modeled HAP emissions are more than twice the permitted limit, and one HAP (vinylidene chloride) was modeled at potential emissions of over 35 tons per year. Therefore, this modeling program demonstrates emissions of HAPs/air toxics from Owensboro Specialty Polymers will not result in adverse impacts to the exposed population.

Modeling files are being provided electronically to KDAQ.

Table 6 - Stack Parameters for Modeling

Emissions Unit	Process	Vent ID	Description	UTM East m	UTM North m	Stack Height ft	Stack Diameter ft	Stack Temperature F	Stack Gas Velocity ft/sec
08	DARAN	VT 1301-1	Manual/Emergency vent on tanks V-201 and V-211	495468.9	4184860.8	13	0.25	70	0.1
08, 09, 10	DARAN	VT-1308-1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	495502.1	4184848.4	51	0.25	225	0.09
08	DARAN	VT-1308-3	Steam Ejector (Vacuum) Vent for S200 (A Stripper)	495503.4	4184850.6	51	0.25	225	0.24
09	DARAN	VT-1301-3	Manual/Emergency Vent on R210	495468.3	4184859.9	13	0.25	90	0.02
09	DARAN	VT-1308-4	Steam Ejector (Vacuum) Vent for S210 (B Stripper)	495503.1	4184850.1	51	0.25	225	0.32
10	DARAN	VT-1301-4	Manual/Emergency Vent on V221	495467.2	4184858.2	13	0.25	70	0.08
10	DARAN	VT-1301-5	Manual/Emergency Vent on R220	495468.1	4184859.4	13	0.25	90	0.019
10	DARAN	VT-1308-5	Steam Ejector (Vacuum) Vent for S220 (C Stripper)	495506.2	4184838.3	51	0.25	225	0.35
11	DARAN	VT-1304-1	Steam Ejector Vent for R230	495504.7	4184877.7	29	0.25	225	0.09
12	SPECIALTY R-1117	VT-6001-2	Vent on R650	495536.7	4184931.9	16	0.33	125	0.02
14	SPECIALTY R-1117	VT-1604-1	Vent on R460	495525.3	4184891.2	43	0.333	125	0.00009
16	RAW MATERIAL TANKS	VT-3000-1	Methyl acrylate storage tank (V-521)	495374.3	4184859.7	28.2	0.667	70	0.0013
16	RAW MATERIAL TANKS	VT-3000-11	Acrylonitrile storage tank (V-511)	495378.5	4184857.8	28.2	0.667	70	0.0013
16	RAW MATERIAL TANKS	VT-3000-5	Methyl methacrylate storage tank (V-512)	495383.3	4184866.9	29.4	0.25	70	0.01
17	WW TREATMENT		Wastewater Treatment Emissions	Modeled as a rectangular area source with a ground-level release height					
18	DARAN	VT-1101-1	Steam out Vent from R51 (VT-1104-12) to Dilution Blower	495538.8	4184944.3	30	0.1667	125	0.014
			Plantwide Fugitives	Modeled as a rectangular area source with a 10 ft. release height					
			Product Storage	Included with fugtive emissions					
21	N-Serve	EP-21	Aromatic 100 Storage	495461.6	4184894.5	35	1.167	70	0.57
22	N-Serve	EP-22	Xylene Storage Tank	495467.4	4184892.9	24	1	70	0.18
24	N-Serve	EP-24	Blend Vessel	495461.6	4184892.9	24	1.167	70	0.15
	N-Serve		Fugitives	Modeled as a rectangular area source with a 10 ft. release height					

Figure 2 – Source Locations for AERMOD Modeling

Table 7 - Results of HAP/Air Toxic Modeling

Pollutant	Averaging Time	Source of Screening Number	Carcinogentic Target Risk (TR) Value (ug/m^3) = 1E-06	Noncancer Hazard Index (HI) Value (ug/m^3) = 1	Concentration at maximally impacted residential receptor (ug/m^3)	Concentration > RSL value?	Inhalation Risk Unit (IUR)	Reference Concentration (RfC)	Risk at maximally impacted residential receptor IUR*[concentration]	Hazard at the maximally impacted residential receptor [concentration]/RfC	Risk?	Hazard?
Acrylonitrile	Annual	RSL	4.10E-02	2.10E+00	3.90E-01	Yes	6.80E-05	2.00E+00	2.65E-05	1.95E-01	No	No
Acrylic Acid	Annual	RSL		2.10E-01	2.10E-02	No		2.00E-01		1.05E-01	No	No
Methyl Acrylate	Annual	RSL		2.10E+01	9.60E-01	No		2.00E+01		4.80E-02	No	No
Methyl Methacrylate	Annual	RSL		7.30E+02	8.10E-01	No		7.00E+02		1.16E-03	No	No
Vinylidene Chloride	Annual	RSL		4.10E+00	3.75E+00	No		3.96E+00		9.47E-01	No	No
Xylene	Annual	RSL		1.00E+02	1.70E-01	No		1.00E+02		1.70E-03	No	No
Cumene	Annual	RSL		4.20E+02	1.20E-03	No		4.00E+02		3.00E-06	No	No
HCl	Annual	RSL		2.10E+01	3.50E-03	No		2.00E+01		1.75E-04	No	No
3-Methylchloranthrene	Annual	RSL	1.60E-04		3.10E-09	No	6.30E-03		1.95E-11		No	No
7,12-Dimethylbenz(a)anthracene	Annual	RSL	1.40E-05		2.70E-08	No	7.10E-02		1.92E-09		No	No
Acetaldehyde	Annual	RSL	1.30E+00	9.40E+00	7.50E-07	No	2.20E-06	9.00E+00		8.33E-08	No	No
Acrolein	Annual	RSL		2.10E-02	2.30E-07	No		2.00E-02		1.15E-05	No	No
Arsenic	Annual	RSL	6.50E-04	1.60E-02	3.40E-07	No	4.30E-03	1.50E-02	1.46E-09	2.27E-05	No	No
Benz(a)anthracene	Annual	RSL	1.70E-02		2.00E-08	No	6.00E-05				No	No
Benzene	Annual	RSL	3.60E-01	3.10E+01	2.50E-05	No	7.80E-06	3.00E+01	1.95E-10	8.33E-07	No	No
Benzo(a)pyrene	Annual	RSL	1.70E-03	2.10E-03	8.50E-09	No	6.00E-04	2.00E-03		4.25E-06	No	No
Benzo(b)fluoranthene	Annual	RSL	1.70E-02		3.40E-08	No	6.00E-05		2.04E-12		No	No
Benzo(k)fluoanthene	Annual	RSL	1.70E-01		7.90E-09	No	6.00E-06				No	No
Beryllium	Annual	RSL	1.20E-03	2.10E-02	2.00E-08	No	2.40E-03	2.00E-02	4.80E-11	1.00E-06	No	No
Cadmium	Annual	RSL	1.60E-03	1.00E-02	1.90E-06	No	1.80E-03	1.00E-02	3.42E-09	1.90E-04	No	No
Chromium	Annual	RSL		6.30E-02	2.40E-06	No		6.00E-02		4.00E-05	No	No
Chrysene	Annual	RSL	1.70E+00		4.70E-08	No	6.00E-07		2.82E-14		No	No
Cobalt	Annual	RSL	3.10E-04	6.30E-03	1.40E-07	No	9.00E-03	6.00E-03	1.26E-09	2.33E-05	No	No
Dibenzo(a,h)anthracene	Annual	RSL	1.70E-03		1.10E-08	No	6.00E-04		6.60E-12		No	No
Dichlorobenzene	Annual	RSL	2.60E-01	8.30E+02	2.00E-06	No	1.10E-05	8.00E+02	2.20E-11	2.50E-09	No	No
Formaldehyde	Annual	RSL	1.40E-01	7.30E+00	1.30E-04	No	7.40E-06	7.00E+00	9.62E-10	1.86E-05	No	No
Hexane	Annual	RSL		7.30E+02	3.10E-03	No		7.00E+02		4.43E-06	No	No
Indo(1,2,3-c,d)pyrene	Annual	RSL	1.70E-02		1.40E-08	No	6.00E-05				No	No
Lead	Annual	RSL		1.50E-01	8.50E-07	No					No	No
Manganese	Annual	RSL		5.20E-02	6.50E-07	No		5.00E-02		1.30E-05	No	No
Mercury	Annual	RSL		3.10E-01	4.40E-07	No		3.00E-01		1.47E-06	No	No
Naphthalene	Annual	RSL	8.30E-02	3.10E+00	4.30E-06	No	3.40E-05	3.00E+00	1.46E-10	1.43E-06	No	No
Nickel	Annual	RSL	1.10E-02	1.00E-02	3.60E-06	No	2.60E-04	1.00E-02	9.36E-10	3.60E-04	No	No
Selenium	Annual	RSL		2.10E+01	4.10E-08	No		2.00E+01		2.05E-09	No	No
Toluene	Annual	RSL		5.21E+03	1.20E-05	No		5.00E+03		2.40E-09	No	No

Outlook

Permit question

From Barry Sparks <Barry.Sparks@Milliken.com>
Date Mon 4/21/2025 3:04 PM
To Patil, Durga D (EEC) <Durga.Patil@ky.gov>
Cc CHRIS WATHEN <CWATHEN@kenvirons.com>

Patil

Please move forward with the permit excluding the PVA R157 process which contains the Vinyl acetate as Owensboro Specialty Polymers does not intend to make this in the future.

Barry Sparks
Owensboro Specialty Polymers Inc. a Milliken Company
Office: 270-663-1422
Cell: 270-315-8056

Emissions Unit	Process	Vent ID	Description	Acrylic Acid Emissions tons/year	Acrylonitrile Emissions tons/year	Methyl Acrylate Emissions tons/year	Methyl Methacrylate Emissions tons/yhear	Vinylidene Chloride Emissions tons/year	Cumene Emissions tons/yr	HCl Emissions tons/yr	Xylene Emissions tons/yr
08	DARAN	VT 1301-1	Manual/Emergency vent on tanks V-201 and V-211	0.0151		0.281	0.566	2.839			
08	DARAN	VT-1308-1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	0.0152		0.362	0.573	2.873			
08	DARAN	VT-1308-3	Steam Ejector (Vacuum) Vent for S200 (A Stripper)	0.0397		0.740	1.491	7.478			
09	DARAN	VT 1301-1	Manual/Emergency vent on tanks V-201 and V-211	0.0143		0.359	0.534	2.677			
09	DARAN	VT-1301-3	Manual/Emergency Vent on R210	0.000054		0.0014	0.0020	0.0101			
09	DARAN	VT-1308-1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	0.0144		0.463	0.541	2.709			
09	DARAN	VT-1308-4	Steam Ejector (Vacuum) Vent for S210 (B Stripper)	0.0513		1.293	1.923	9.633			
10	DARAN	VT-1301-4	Manual/Emergency Vent on V221	0.0032	0.0080		0.138	0.690			
10	DARAN	VT-1301-5	Manual/Emergency Vent on R220	0.00075	0.0019		0.0323	0.161			
10	DARAN	VT-1308-1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	0.0024	0.0061		0.105	0.526			
10	DARAN	VT-1308-5	Steam Ejector (Vacuum) Vent for S220 (C Stripper)	0.0136	0.034		0.585	2.923			
11	DARAN	VT-1304-1	Steam Ejector Vent for R230	0.000039		0.303	0.000039	0.000039			
12	SPECIALTY R-1117	VT-6001-2	Vent on R650		0.67	2.09					
16	RAW MATERIAL TANKS	VT-3000-1	Methyl acrylate storage tank (V-521)			0.40					
16	RAW MATERIAL TANKS	VT-3000-11	Acrylonitrile storage tank (V-511)		0.163						
16	RAW MATERIAL TANKS	VT-3000-5	Methyl methacrylate storage tank (V-512)				0.448				
17	WW TREATMENT		Wastewater Treatment Emissions	0.0194	0.052	0.166	0.421	2.295			
18	DARAN	VT-1101-1	Steam out Vent from R51 (VT-1104-12) to Dilution Blower	0.000026			0.000026	0.000026			
			Plantwide Fugitives	0.0057	0.695	0.338	0.117	0.517			
			Product Storage	0.00058			0.0053	0.078			
21	N-Serve	EP-21	Aromatic 100 Storage						0.00073		0.0015
22	N-Serve	EP-22	Xylene Storage Tank								0.0369
24	N-Serve	EP-24	Blend Vessel						0.0024	0.0014	0.0354
	N-Serve		Fugitives						0.00393	0.0183	0.16

OWENSBORO SPECIALTY POLYMERS, INC.

HAP/AIR TOXIC MODELING REPORT

Prepared For:

OWENSBORO SPECIALTY POLYMERS, INC.

Prepared By:

Kenvirons, LLC

KENVIRONS

Celebrating 50 Years, 1975-2025

Project Number 2025038

March 2025

Introduction

Owensboro Specialty Polymers (OSP), located in Daviess County in Owensboro, Kentucky, is a manufacturer of specialty polymers and holds a current air permit in Kentucky, Conditional Major Permit No. F-17-032. A timely permit renewal application was submitted by the facility to the Kentucky Division for Air Quality (KDAQ), and during the course of the permit review process KDAQ requested that OSP provide an analysis of ambient air impacts of Hazardous Air Pollutants (HAPs) and non-HAP air toxic compounds to demonstrate that emissions from the facility will not result in adverse exposure to the residential population surrounding the plant site.

In order to perform this analysis, dispersion modeling for emissions of HAPs/air toxics at OSP was performed by Kenvirons, LLC. In order to perform this modeling, it was necessary to employ an EPA-approved air quality dispersion model.

Since some of the terrain within the modeling domain is above the stack heights at the plant, the terrain is classified as complex, and as such, a model appropriate for use in complex terrain must be used. In accordance with the Guideline on Air Quality Models (GAQM, Appendix W to 40 CFR Part 51), the appropriate model for application to this domain is the EPA AERMOD dispersion model. For this modeling analysis, the latest version of the AERMOD model (version 24142) was used for predicting ambient air impacts for each modeled pollutant. The specific model user interface used for the modeling was AERMOD-View by Lakes Environmental (Ontario, Canada).

Application of the AERMOD model to evaluate air quality impacts from OSP requires setting model control options, processing the appropriate meteorological and terrain data, setting receptor grids, determining background concentrations, inputting source emission and stack parameter data, and generating output necessary for the proper impact evaluation.

AERMOD Model Options

For all modeling runs conducted for the evaluation of the plant's air quality impacts, the regulatory default option in AERMOD was selected.

In order to include building wake effects, the Building Profile Input Program, PRIME version (BPIP-PRIME, version 04274) was used to calculate downwash parameters for the modeled emission sources by using building, structure, and tank dimensions and heights relative to the modeled sources. None of the point sources exceed Good Engineering Practice (GEP) stack heights.

A necessary step in preparing a modeling exercise with AERMOD is the proper classification of land use in the immediate vicinity of the plant such that the appropriate dispersion coefficients are employed (urban versus rural). As specified in Section 5.1 of the AERMOD Implementation Guide and in Section 7.2.1.1.b of the GAQM, land use within a 3 km radius around the plant property is analyzed to determine the percentage of each of the land use categories within the 3 km area. The Auer land use method was employed to determine the percentage of each of the land use categories listed in the National Land Cover Database within 3 km of the plant. If land use types from the Developed, Low Intensity, Developed, Medium Intensity, and Developed, High Intensity categories exceed 50% or more of the land use categories within the 3 km area, then urban dispersion coefficients must be used. If the land use types from those listed categories is less than 50%, then rural dispersion coefficients must be used. In order to determine these percentages, an online tool from the South Carolina Department of

Environmental Services (SCDES) was used by specifying the center of the plant location in latitude-longitude and specifying a 3 km radius around those coordinates[1]. This tool then calculated the percentages of each of the land use categories from the Land Cover Database present in the area. Table 1 shows the percentage of each of the land use categories present in the area. As this table shows, 87.5% of the land use within the 3-km radius of the plant is classified as rural. Therefore, rural dispersion coefficients were used for all AERMOD runs.

Table 1 - Land Use within 3 km of OSP

Landuse	Area(m^2)	Percent	Classification
Open Water	5,481,900	19.4	Rural
Developed Open Space	1,354,500	4.8	Rural
Developed Low Intensity	1,326,600	4.7	Urban
Developed Medium Intensity	1,276,200	4.5	Urban
Developed High Intensity	924,300	3.3	Urban
Barren Land	87,300	0.3	Rural
Deciduous Forest	2,609,100	9.2	Rural
Evergreen Forest	16,200	0.1	Rural
Mixed Forest	293,400	1	Rural
Shrub Scrub	3,600	0	Rural
Herbaceous	9,000	0	Rural
Hay Pasture	1,993,500	7.1	Rural
Cultivated Crops	12,272,400	43.5	Rural
Woody Wetlands	498,600	1.8	Rural
Total Urban		**12.5%**	
Total Rural		**87.5%**	

Meteorological Data

Pre-processed AERMOD-ready meteorological data required for the modeling is provided by the Kentucky Division for Air Quality (KDAQ). The Division recommends which surface stations and upper air stations should be selected based on the county in which the source being modeled is located. Since OSP is located in Daviess County, Kentucky, KDAQ recommends the following surface and upper air stations for modeling sources in that location[2]:

Surface Station: Evansville, Indiana
Upper Air Station: Nashville, Tennessee

The most recent five years of available meteorological data from these stations, which cover the period from 2019 through 2023, was used for the modeling.

[1] https://gis.dhec.sc.gov/landcover/
[2] https://eec.ky.gov/Environmental-Protection/Air/Pages/Modeling%20and%20Meteorology.aspx

Terrain Processing and Receptor Input

Receptor coordinates, elevations, and hill height scales were produced by the latest version of the AERMAP terrain processing program for input into AERMOD. USGS Digital Elevation Models (DEMs) were utilized by AERMAP to determine the terrain elevation at each receptor, the hill height scales, and source elevations (if necessary). The DEMs were obtained from the USGS National Elevation Database (NED) in GeoTIFF format, with a resolution of 1/3 arc second (approximately 10 meters) and extend beyond the modeling domain. All source and receptor coordinates were specified in terms of UTM coordinates in NAD83, with UTM Zone 16 set as the base zone for the modeling domain.

The receptor grid used for the assessment of impacts from OSP consists of a Cartesian receptor grid out to 5 km from the plant site, with receptors placed at 100 meter intervals. Modeling was conducted using the Tier 2 procedures described in EPA's Air Toxics Risk Assessment Reference Library, Volume 2[3]. In accordance with the EPA guidance, The Tier 2 approach shifts from the maximum offsite ambient concentration to the concentrations within Census blocks (i.e., where people actually reside). The nearest residential location to OSP is 1000 meters from the center of the sources of emissions at the plant (See Figure 1). Therefore, only receptors greater than 1000 meters from the plant site were included in the modeling. That procedure provides a conservative approach since most of the area where receptors are 1000 meters away from OSP are not in residential areas.

Source Inputs

In order to complete the modeling setup for air toxics evaluation, it was necessary to identify the emission points and associated subject HAPs/Air Toxic compounds for inclusion in the modeling. Permit F-17-032, Section J identifies the reaction processes and associated vents at the plant. Many of these vents are no longer in service, and many of the vents specified in the permit do not emit HAPs or air toxic compounds or do not have any associated emissions during normal operations. The DAXAD process listed as Emission Point 07 in the permit has been out of service for some time and would require some construction and associated permitting to put that process train back in service. Therefore, DAXAD sources were not included in the modeling. Table 2 lists the vents for each process unit in Section J of the permit and specifies which vents are included in the modeling, which vents are no longer in service at the plant, which vents that are still in service that do not emit HAPs/air toxics, and which vents that are still in service that have no emissions during normal operation. It should be noted that compounds that are not listed in EPA's RSL tables for residential air impacts were not included in the modeling. However, all HAPs emitted by the process units were included in the modeling.

Table 3 shows the potential emissions of HAPs/air toxics from each vent within each of the reaction process units, including raw material storage tank emissions, fugitive emissions and wastewater treatment emissions. All potential emissions from the process units and associated tanks/fugitives were accounted for in the modeling. Table 4 shows potential emissions of HAPs from the emergency generator at the plant, and Table 5 shows potential emissions of HAPs from the recently-permitted natural gas-fired boiler. While the emergency generator and boiler have trivial emissions of HAPs, their emissions were nonetheless included in the modeling using the Multi-Chemical option in the Lakes AERMOD software for those HAPs only emitted by the boiler or emergency generator.

[3] EPA-453-K-04-001B, April 2004


Figure 1
Plant Location with Nearest Residential Location
Legend
1,000 meters
Bobby's Tire and Mechanical
Marathon Gas
INDIANA
Owensboro Specialty Polymers
Ohio River
Nearest Residential Location
Thruston
Dollar General
Yellow Creek Park
Reid's Orchard
Google Earth
3000 ft
N

Table 2 - Sources Included in Modeling

Emission Unit	Vent ID		Description	Include in Modeling?	Notes
EU 07 DAXAD	VT 1501	1	Manual Vent on R360 via Condenser H-R360	No	No longer in service
	VT 1504	1	Manual Vent on R360 via Condenser H-R360	No	No longer in service
	VT 1504	3	Emergency Vent for R360	No	No longer in service
	VT 1504	2	Steam Ejector Vent of R360	No	No longer in service
	VT 1501	3	Vent on 50% Methanol storage tank V304	No	No longer in service
	VT 1501	2	Reboiler of distillation still BO-342 with vent	No	No longer in service
	VT 1504	4	Breather Vent on Distillation Still Condenser (H-D342)	No	No longer in service
	VT 1504	5	Vent on Tank 343 (overhead receiver)	No	No longer in service
	VT 3001	2	Remeth tank (V341)	No	No longer in service
EU 08 DARAN R-200	VT 1301	1	Manual/Emergency vent on tanks V-201 and V-211	Yes	
	VT 1308	1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	Yes	
	None		DESM tank V-205 (open top)	No	Does not emit HAP/air toxics
	None		Vent on continuous catalyst tank A (V203)	No	Does not emit HAP/air toxics
	None	6	SEDAR tank V-207 with vent	No	Does not emit HAP/air toxics
	VT 1301	2	Manual/Emergency Vent on R200		No longer in service
	VT 1308	6	Manual Vent on V241, 242 (PSLT 1 and 2)		No longer in service
	VT 1308	3	Steam Ejector (Vacuum) Vent for S200 (A Stripper)	Yes	
	VT 1308	8	Steam ejector (vacuum) vent for V251, 252, 253, 254 (SLT 1, 2, 3, 4)	No	Does not emit HAP/air toxics
	VT 1308	12	Vents on V251 and V252 (SLT 1 and 2)	No	Does not emit HAP/air toxics
EU 09 DARAN R-210	VT 1301	1	Manual/Emergency vent on tanks V-201 and V-211	Yes	
	VT 1308	1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	Yes	
	None		DESM tank V-205 (open top)	No	Does not emit HAP/air toxics
	VT 1308	11	Vent on continuous catalyst tank B (V213)	No	Does not emit HAP/air toxics
	None	6	SEDAR tank V-207 with vent	No	Does not emit HAP/air toxics
	VT 1301	3	Manual/Emergency Vent on R210	Yes	
	VT 1308	4	Steam Ejector (Vacuum) Vent for S210 (B Stripper)	Yes	
	VT 1308	8	Steam ejector (vacuum) vent for V251, 252, 253, 254 (SLT 1, 2, 3, 4)	No	Does not emit HAP/air toxics
	VT 1308	13	Vents on V253 and V254 (SLT 3 and 4)	No	Does not emit HAP/air toxics
EU 10 DARAN R-220	VT 1301	4	Manual/Emergency Vent on V221	Yes	
	VT 1308	1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	Yes	
	VT 1308	9	Vent on V225 (C DESM tank)	No	Does not emit HAP/air toxics
	None		C continuous catalyst tank V-223	No	Does not emit HAP/air toxics
	None	6	SEDAR tank V-207 with vent	No	Does not emit HAP/air toxics
	VT 1301	5	Manual/Emergency Vent on R220	Yes	
	VT 1308	5	Steam Ejector (Vacuum) Vent for S220 (C Stripper)	Yes	
	VT 1308	2	Manual vent on S220 (C Stripper)	No	No emissions under normal operation
EU 11 DARAN R-230	VT 1104	18	Emergency Vent from Monomer Mix Tank V231	No	No emissions under normal operation
	VT 1104	23	Manual Vent on Monomer Mix Tank V231	No	No emissions under normal operation
	VT 1304	2	Vent on continuous catalyst tank (V233)	No	Does not emit HAP/air toxics
	None	6	SEDAR tank V-207 with vent	No	Does not emit HAP/air toxics
	VT 1301	7	Manual/Emergency Vent on R230	No	No emissions under normal operation
	VT 1304	1	Steam Ejector Vent for R230	Yes	
	VT 6004	1	Continuous feed tank V-653 with vent	No	Does not emit HAP/air toxics
	VT 6004	2	Continuous feed tank V-654 with vent	No	Does not emit HAP/air toxics
EU 18 DARAN R-51	VT 1104	2	Steam Ejector Vent for reactor 51	No	No emissions under normal operation
	VT 1104	12	Steam out Vent from R51 to Dilution Blower	Yes	Vents to Dilution Blower VT1101-1
	VT 1104	22	Manual Vent on Monomer Mix Tank V-34	No	No emissions under normal operation
	VT 1104	25	Manual/Emergency Vent from R51	No	No emissions under normal operation
	VT 1104	38	Steamout Vent #3 from R51	No	No longer in service
	None		Vacuum receiver VR-R51 with vent	No	No emissions under normal operation

Table 2 - Sources Included in Modeling

Emission Unit	Vent ID		Description	Include in Modeling?	Notes
EU 12 SPECIALTY R-650	VT 6004	3	Manual Vent on V652 (Monomer Mix Tank)	No	No emissions under normal operation
	VT 6004	1	Continuous feed tank V-653 with vent	No	Does not emit HAP/air toxics
	VT 6004	2	Continuous feed tank V-654 with vent	No	Does not emit HAP/air toxics
	VT 6001	1	Manual Vent on R650	No	No emissions under normal operation
	VT 6001	2	Emergency Vent on R650	Yes	
EU 14 SPECIALTYT R-450	VT 1604	3	Steam ejector vent (to create vacuum on R450, 460 and V451)	No	No longer in service
	VT 1604	1	R450 Manual Vent	No	No longer in service
	VT 1604	4	Sampling hood vent from R50, 51, 53, 450 and 460	No	No longer in service
	VT 1603	1	Exhaust Fan Vent in Hypol Packaging Area	No	No longer in service
EU 13 PVA R-157	VT 3404	1	Vent on Monomer Mix Tank (V130)	No	No longer in service
	VT 3404	2	Vent on styrene addition tank V130	No	No longer in service
	VT 3404	3	Vent from feed tanks V120, V121	No	No longer in service
	VT 3404	4	Vent on styrene addition tank SB-R157	No	No longer in service
	VT 3404	8	Vent on emulsifier tanks 128 and 129 to exhaust fan	No	No longer in service
	VT 3404	5	Steam Ejector Vent for R157 (through vacuum receiver and condenser)	No	No longer in service
	VT 3401	1	Steam Ejector Vent for R157	Yes	
	VT 3404	6	Manual Vent for Condenser and Vacuum Receiver on R157	No	No longer in service
Tanks	VT 3000	1	Methyl acrylate storage tank (V-521)	Yes	
	VT 3000	2	n-Butyl acrylate storage tank (V-525)	No	Does not emit HAP/air toxics
	VT 3000	3	2-Ethyl hexyl acrylate storage tank (V-522)	No	Does not emit HAP/air toxics
	VT 3000	4	di-n-butyl maleate storage tank (V-514)	No	No longer in service
	VT 3000	5	Methyl methacrylate storage tank (V-512)	Yes	
	VT 3000	6	Methanol storage tank (V-513)*	No	No longer in service
	VT 3000	7	Vinylidene chloride storage tank (V-531)	No	No emissions
	VT 3000	8	Hexylene glycol storage tank (V-516)	No	No longer in service
	VT 3000	9	Ethyl acrylate storage tank (V-515)	No	No longer in service
	VT 3000	10	Styrene storage tank (V-533)	No	No longer in service
	VT 3000	11	Acrylonitrile storage tank (V-511)	Yes	
	VT 3000	12	Vinyl acetate storage tank (V-532)	No	No longer in service
	VT 3004	1	Glacial methacrylate storage tank V-701	No	No longer in service

Table 3 - Pollutants and Potential Emissions for Modeling from Process Sources

Emissions Unit	Process	Vent ID	Description	Acrylic Acid Emissions tons/year	Acrylonitrile Emissions tons/year	Methyl Acrylate Emissions tons/year	Methyl Methacrylate Emissions tons/yhear	Vinylidene Chloride Emissions tons/year	Cumene Emissions tons/yr	HCl Emissions tons/yr	Xylene Emissions tons/yr
08, 09	DARAN	VT 1301-1	Manual/Emergency vent on tanks V-201 and V-211	0.0293		0.640	1.100	5.516			
08, 09, 10	DARAN	VT-1308-1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	0.0321	0.0061	0.825	1.219	6.108			
08	DARAN	VT-1308-3	Steam Ejector (Vacuum) Vent for S200 (A Stripper)	0.0397		0.740	1.491	7.478			
09	DARAN	VT-1301-3	Manual/Emergency Vent on R210	0.000054		0.0014	0.00202	0.0101			
09	DARAN	VT-1308-4	Steam Ejector (Vacuum) Vent for S210 (B Stripper)	0.0513		1.293	1.923	9.633			
10	DARAN	VT-1301-4	Manual/Emergency Vent on V221	0.0032	0.0080		0.138	0.690			
10	DARAN	VT-1301-5	Manual/Emergency Vent on R220	0.00075	0.0019		0.0323	0.161			
10	DARAN	VT-1308-5	Steam Ejector (Vacuum) Vent for S220 (C Stripper)	0.0136	0.034		0.585	2.923			
11	DARAN	VT-1304-1	Steam Ejector Vent for R230	0.000039		0.303	0.000039	0.000039			
12	SPECIALTY R-1117	VT-6001-2	Vent on R650		0.67	2.09					
16	RAW MATERIAL TANKS	VT-3000-1	Methyl acrylate storage tank (V-521)			0.40					
16	RAW MATERIAL TANKS	VT-3000-11	Acrylonitrile storage tank (V-511)		0.163						
16	RAW MATERIAL TANKS	VT-3000-5	Methyl methacrylate storage tank (V-512)				0.448				
17	WW TREATMENT		Wastewater Treatment Emissions	0.0194	0.052	0.166	0.421	2.295			
18	DARAN	VT-1101-1	Steam out Vent from R51 (VT-1104-12) to Dilution Blower	0.000026			0.000026	0.000026			
			Plantwide Fugitives	0.0057	0.695	0.338	0.117	0.517			
			Product Storage	0.00058			0.0053	0.078			
21	N-Serve	EP-21	Aromatic 100 Storage						0.00073		0.0015
22	N-Serve	EP-22	Xylene Storage Tank								0.0369
24	N-Serve	EP-24	Blend Vessel						0.0024	0.0014	0.0354
	N-Serve		Fugitives						0.00393	0.0183	0.16
Total Modeled Emissions, tons per year				0.20	1.63	6.80	7.48	35.41	0.0070	0.020	0.23

Table 4

Diesel Generator Hazardous Air Pollutant Emissions

Engine Power Rating HP	Pollutant	Emission Factor lb/mgal[1]	Potential Emissions lb/hr	Potential Emissions tons/yr[2]
423	Benzene	1.06E-01	2.23E-03	5.58E-04
	Toluene	3.85E-02	8.08E-04	2.02E-04
Fuel Usage gal/hr	Xylene	2.64E-02	5.55E-04	1.39E-04
	Formaldehyde	1.08E-02	2.27E-04	5.67E-05
21	Acetaldehyde	3.45E-03	7.25E-05	1.81E-05
	Acrolein	1.08E-03	2.27E-05	5.67E-06
	Naphthalene	1.78E-02	3.74E-04	9.35E-05
	Acenaphthylene	1.26E-03	2.66E-05	6.64E-06
	Acenaphthene	6.41E-04	1.35E-05	3.37E-06
	Fluorene	1.75E-03	3.68E-05	9.21E-06
	Phenanthrene	5.59E-03	1.17E-04	2.93E-05
	Anthracene	1.69E-04	3.54E-06	8.85E-07
	Fluoranthene	5.52E-04	1.16E-05	2.90E-06
	Pyrene	5.08E-04	1.07E-05	2.67E-06
	Benz(a)anthracene	8.52E-05	1.79E-06	4.47E-07
	Chrysene	2.10E-04	4.40E-06	1.10E-06
	Benzo(b)fluoranthene	1.52E-04	3.19E-06	7.98E-07
	Benzo(k)fluoranthene	2.99E-05	6.27E-07	1.57E-07
	Benzo(a)pyrene	3.52E-05	7.39E-07	1.85E-07
	Indeno(1,2,3-cd)pyrene	5.67E-05	1.19E-06	2.98E-07
	Dibenze(a,h)anthracene	4.74E-05	9.95E-07	2.49E-07
	Benzo(g,h,l)perylene	7.62E-05	1.60E-06	4.00E-07

[1]Emission Factors from AP-42 Chapter 3.4-3 and 3.4-4, conversion factor of 137,000 Btu/gal.

[2]Maximum of 500 hours per year of operation

Table 5
Natural Gas Boiler Hazardous Air Pollutant Emissions

Natural Gas Usage $mmft^3/hr$	Pollutant	Emission Factor $lb/mmft^3$	Potential Emissions lb/hr	Potential Emissions tons/year
0.021	2-Methylnaphthalene	2.40E-05	5.04E-07	2.21E-06
	3-Methylchloranthrene	1.80E-06	3.78E-08	1.66E-07
	7,12-Dimethylbenz(a)anthracene	1.60E-05	3.36E-07	1.47E-06
	Acenaphthene	1.80E-06	3.78E-08	1.66E-07
	Acenaphthylene	1.80E-06	3.78E-08	1.66E-07
	Anthracene	2.40E-06	5.04E-08	2.21E-07
	Arsenic	2.00E-04	4.20E-06	1.84E-05
	Benz(a)anthracene	1.80E-06	3.78E-08	1.66E-07
	Benzene	2.10E-03	4.41E-05	1.93E-04
	Benzo(a)pyrene	1.20E-06	2.52E-08	1.10E-07
	Benzo(b)fluoranthene	1.80E-06	3.78E-08	1.66E-07
	Benzo(g,h,i)perylene	1.20E-06	2.52E-08	1.10E-07
	Benzo(k)fluoanthene	1.80E-06	3.78E-08	1.66E-07
	Beryllium	1.20E-05	2.52E-07	1.10E-06
	Cadmium	1.10E-03	2.31E-05	1.01E-04
	Chromium	1.40E-03	2.94E-05	1.29E-04
	Chrysene	1.80E-06	3.78E-08	1.66E-07
	Cobalt	8.40E-05	1.76E-06	7.73E-06
	Dibenzo(a,h)anthracene	1.20E-06	2.52E-08	1.10E-07
	Dichlorobenzene	1.20E-03	2.52E-05	1.10E-04
	Fluoranthene	3.00E-06	6.30E-08	2.76E-07
	Fluorene	2.80E-06	5.88E-08	2.58E-07
	Formaldehyde	7.50E-02	1.58E-03	6.90E-03
	Hexane	1.80E+00	3.78E-02	1.66E-01
	Indo(1,2,3-c,d)pyrene	1.80E-06	3.78E-08	1.66E-07
	Lead	5.00E-04	1.05E-05	4.60E-05
	Manganese	3.80E-04	7.98E-06	3.50E-05
	Mercury	2.60E-04	5.46E-06	2.39E-05
	Naphthalene	6.10E-04	1.28E-05	5.61E-05
	Nickel	2.10E-03	4.41E-05	1.93E-04
	Phenanthrene	1.70E-05	3.57E-07	1.56E-06
	Pyrene	5.00E-06	1.05E-07	4.60E-07
	Selenium	2.40E-05	5.04E-07	2.21E-06
	Toluene	3.40E-03	7.14E-05	3.13E-04

Emission Factors from AP-42 Tables 1.4-3 and 1.4-4

Finally, Table 6 presents the coordinates and stack parameters for point sources included in the modeling. Fugitive emissions were modeled as rectangular area sources that encompass raw material storage, process areas, and product storage. Product storage emissions were included in the fugitive emissions. Wastewater treatment emissions were also modeled as a rectangular area source. Figure 2 shows the locations of the modeled sources within the plant.

Modeling Results

Having compiled the necessary data, AERMOD modeling was conducted using potential emissions of each HAP/air toxic compound. The annual averaging period was chosen for each pollutant model run, with the highest predicted impact over the five (5) year of meteorological data reported for comparison with the relevant thresholds.

Once the modeling for each pollutant was completed, the cancer risk for carcinogens and the chronic non-cancer hazard for non-carcinogens were calculated to determine whether emissions of any of the modeled compounds pose a risk or hazard. In order to perform this evaluation, the relevant Inhalation Risk Unit (IUR) values and Reference Concentration (RfC) values from the EPA Regional Screening Level (RSL) Resident Ambient Air Table (TR=1E-06, HQ=1), November 2024, were used.

For those carcinogens with a specified IUR, the risk was calculated as follows:

Risk = Modeled Concentration (ug/m^3) x IUR ($1/ug/m^3$)

If the calculated risk is greater than the IUR, then impacts from the subject pollutant could pose a cancer risk to the exposed population and further analysis/emission reductions could be warranted.

For those pollutants with a specified RfC, the hazard potential was calculated as follows:

Hazard = Modeled Concentration (ug/m^3) / RfC (ug/m^3)

If the calculated hazard potential is greater than the RfC, then impacts from the subject pollutant could pose a noncancer hazard to the exposed population and further analysis/emission reductions could be warranted.

Table 7 presents the results of the modeling showing the maximum annual modeled impacts and the calculated cancer risk and noncancer hazard potential. As these results show, none of the modeled pollutants will pose a cancer risk or hazard potential to the exposed population. These results should be overly conservative since potential emissions were used in the modeling. Owensboro Specialty Polymers is classified as a Conditional Major source of emissions with emission limits for individual HAPs of 9 tons per year each and a total HAP emission limit of 22.5 tons per year. Total modeled HAP emissions are more than twice the permitted limit, and one HAP (vinylidene chloride) was modeled at potential emissions of over 35 tons per year. Therefore, this modeling program demonstrates emissions of HAPs/air toxics from Owensboro Specialty Polymers will not result in adverse impacts to the exposed population.

Modeling files are being provided electronically to KDAQ.

Table 6 - Stack Parameters for Modeling

Emissions Unit	Process	Vent ID	Description	UTM East m	UTM North m	Stack Height ft	Stack Diameter ft	Stack Temperature F	Stack Gas Velocity ft/sec
08, 09	DARAN	VT 1301-1	Manual/Emergency vent on tanks V-201 and V-211	495468.9	4184860.8	13	0.25	70	0.1
08, 09, 10	DARAN	VT-1308-1	Steam Ejector (Vacuum) Vent for Monomer Mix Tanks V201, 211, 221 and R200, 210, 220	495502.1	4184848.4	51	0.25	225	0.09
08	DARAN	VT-1308-3	Steam Ejector (Vacuum) Vent for S200 (A Stripper)	495503.4	4184850.6	51	0.25	225	0.24
09	DARAN	VT-1301-3	Manual/Emergency Vent on R210	495468.3	4184859.9	13	0.25	90	0.02
09	DARAN	VT-1308-4	Steam Ejector (Vacuum) Vent for S210 (B Stripper)	495503.1	4184850.1	51	0.25	225	0.32
10	DARAN	VT-1301-4	Manual/Emergency Vent on V221	495467.2	4184858.2	13	0.25	70	0.08
10	DARAN	VT-1301-5	Manual/Emergency Vent on R220	495468.1	4184859.4	13	0.25	90	0.019
10	DARAN	VT-1308-5	Steam Ejector (Vacuum) Vent for S220 (C Stripper)	495506.2	4184838.3	51	0.25	225	0.35
11	DARAN	VT-1304-1	Steam Ejector Vent for R230	495504.7	4184877.7	29	0.25	225	0.09
12	SPECIALTY R-1117	VT-6001-2	Vent on R650	495536.7	4184931.9	16	0.33	125	0.02
16	RAW MATERIAL TANKS	VT-3000-1	Methyl acrylate storage tank (V-521)	495374.3	4184859.7	28.2	0.667	70	0.0013
16	RAW MATERIAL TANKS	VT-3000-11	Acrylonitrile storage tank (V-511)	495378.5	4184857.8	28.2	0.667	70	0.0013
16	RAW MATERIAL TANKS	VT-3000-5	Methyl methacrylate storage tank (V-512)	495383.3	4184866.9	29.4	0.25	70	0.01
17	WW TREATMENT		Wastewater Treatment Emissions	Modeled as a rectangular area source with a ground-level release height					
18	DARAN	VT-1101-1	Steam out Vent from R51 (VT-1104-12) to Dilution Blower	495538.8	4184944.3	30	0.1667	125	0.014
			Plantwide Fugitives	Modeled as a rectangular area source with a 10 ft. release height					
			Product Storage	Included with fugtive emissions					
21	N-Serve	EP-21	Aromatic 100 Storage	495461.6	4184894.5	35	1.167	70	0.57
22	N-Serve	EP-22	Xylene Storage Tank	495467.4	4184892.9	24	1	70	0.18
24	N-Serve	EP-24	Blend Vessel	495461.6	4184892.9	24	1.167	70	0.15
	N-Serve		Fugitives	Modeled as a rectangular area source with a 10 ft. release height					

Figure 2 – Source Locations for AERMOD Modeling

Table 7 - Results of HAP/Air Toxic Modeling

Pollutant	Averaging Time	Source of Screening Number	Carcinogentic Target Risk (TR) Value (ug/m^3) = 1E-06	Noncancer Hazard Index (HI) Value (ug/m^3) = 1	Concentration at maximally impacted residential receptor (ug/m^3)	Concentration > RSL value?	Inhalation Risk Unit (IUR)	Reference Concentration (RfC)	Risk at maximally impacted residential receptor IUR*[concentration]	Hazard at the maximally impacted residential receptor [concentration]/RfC	Risk?	Hazard?
Acrylonitrile	Annual	RSL	4.10E-02	2.10E+00	2.60E-01	Yes	6.80E-05	2.00E+00	1.77E-05	1.30E-01	No	No
Acrylic Acid	Annual	RSL		2.10E-01	2.10E-02	No		2.00E-01		1.05E-01	No	No
Methyl Acrylate	Annual	RSL		2.10E+01	8.40E-01	No		2.00E+01		4.20E-02	No	No
Methyl Methacrylate	Annual	RSL		7.30E+02	8.10E-01	No		7.00E+02		1.16E-03	No	No
Vinylidene Chloride	Annual	RSL		4.10E+00	3.75E+00	No		3.96E+00		9.47E-01	No	No
Xylene	Annual	RSL		1.00E+02	4.00E-02	No		1.00E+02		4.00E-04	No	No
Cumene	Annual	RSL		4.20E+02	1.20E-03	No		4.00E+02		3.00E-06	No	No
HCl	Annual	RSL		2.10E+01	3.50E-03	No		2.00E+01		1.75E-04	No	No
3-Methylchloranthrene	Annual	RSL	1.60E-04		3.10E-09	No	6.30E-03		1.95E-11		No	No
7,12-Dimethylbenz(a)anthracene	Annual	RSL	1.40E-05		2.70E-08	No	7.10E-02		1.92E-09		No	No
Acetaldehyde	Annual	RSL	1.30E+00	9.40E+00	7.50E-07	No	2.20E-06	9.00E+00		8.33E-08	No	No
Acrolein	Annual	RSL		2.10E-02	2.30E-07	No		2.00E-02		1.15E-05	No	No
Arsenic	Annual	RSL	6.50E-04	1.60E-02	3.40E-07	No	4.30E-03	1.50E-02	1.46E-09	2.27E-05	No	No
Benz(a)anthracene	Annual	RSL	1.70E-02		2.00E-08	No	6.00E-05				No	No
Benzene	Annual	RSL	3.60E-01	3.10E+01	2.50E-05	No	7.80E-06	3.00E+01	1.95E-10	8.33E-07	No	No
Benzo(a)pyrene	Annual	RSL	1.70E-03	2.10E-03	8.50E-09	No	6.00E-04	2.00E-03		4.25E-06	No	No
Benzo(b)fluoranthene	Annual	RSL	1.70E-02		3.40E-08	No	6.00E-05		2.04E-12		No	No
Benzo(k)fluoanthene	Annual	RSL	1.70E-01		7.90E-09	No	6.00E-06				No	No
Beryllium	Annual	RSL	1.20E-03	2.10E-02	2.00E-08	No	2.40E-03	2.00E-02	4.80E-11	1.00E-06	No	No
Cadmium	Annual	RSL	1.60E-03	1.00E-02	1.90E-06	No	1.80E-03	1.00E-02	3.42E-09	1.90E-04	No	No
Chromium	Annual	RSL		6.30E-02	2.40E-06	No		6.00E-02		4.00E-05	No	No
Chrysene	Annual	RSL	1.70E+00		4.70E-08	No	6.00E-07		2.82E-14		No	No
Cobalt	Annual	RSL	3.10E-04	6.30E-03	1.40E-07	No	9.00E-03	6.00E-03	1.26E-09	2.33E-05	No	No
Dibenzo(a,h)anthracene	Annual	RSL	1.70E-03		1.10E-08	No	6.00E-04		6.60E-12		No	No
Dichlorobenzene	Annual	RSL	2.60E-01	8.30E+02	2.00E-06	No	1.10E-05	8.00E+02	2.20E-11	2.50E-09	No	No
Formaldehyde	Annual	RSL	1.40E-01	7.30E+00	1.30E-04	No	7.40E-06	7.00E+00	9.62E-10	1.86E-05	No	No
Hexane	Annual	RSL		7.30E+02	3.10E-03	No		7.00E+02		4.43E-06	No	No
Indo(1,2,3-c,d)pyrene	Annual	RSL	1.70E-02		1.40E-08	No	6.00E-05				No	No
Lead	Annual	RSL		1.50E-01	8.50E-07	No					No	No
Manganese	Annual	RSL		5.20E-02	6.50E-07	No		5.00E-02		1.30E-05	No	No
Mercury	Annual	RSL		3.10E-01	4.40E-07	No		3.00E-01		1.47E-06	No	No
Naphthalene	Annual	RSL	8.30E-02	3.10E+00	4.30E-06	No	3.40E-05	3.00E+00	1.46E-10	1.43E-06	No	No
Nickel	Annual	RSL	1.10E-02	1.00E-02	3.60E-06	No	2.60E-04	1.00E-02	9.36E-10	3.60E-04	No	No
Selenium	Annual	RSL		2.10E+01	4.10E-08	No		2.00E+01		2.05E-09	No	No
Toluene	Annual	RSL		5.21E+03	1.20E-05	No		5.00E+03		2.40E-09	No	No

Outlook

Owensboro Specialty Polymers Pre-Draft Permit

From CHRIS WATHEN <CWATHEN@kenvirons.com>
Date Thu 5/15/2025 9:32 AM
To Patil, Durga D (EEC) <Durga.Patil@ky.gov>
Cc Davis, Kevin D (EEC) <Kevin.Davis@ky.gov>; Barry Sparks <barry.sparks@milliken.com>

Durga,

Based on our very helpful and appreciated discussion with the KDAQ modeling group last week, Owensboro Specialty Polymers has been evaluating refinements to the air toxics modeliing, specifically for acrylonitrile as mentioned in my email last Friday. In the interest of getting the permit process wrapped up, OSP has elected to revert back to the original modeling report submitted to the Division where the acrylonitrile allowable emission rate was set at 0.58 tons per year. Therefore, on behalf of OSP, the original pre-draft permit you provided to us on April 22 along with our minor comments submitted by email on May 2 can be issued with the following clarifications:

OSP would like to keep Emission Point 014: Specialty R-1117 (Reactor Train R-450) in the permit.

OSP has confirmed that the following emission units from the previous permit, Permit No. F-17-032, can be removed from the permit:

Emission Point 007: DAXAD (Reactor Train R-360) – no longer in service

Emission Unit 013: PVA (Reactor Train R-157) – no longer in service

New York Shipley Boiler – was not constructed

I have copied Barry Sparks of OSP on this email. Thank you for your time and understanding throughout this process. Please reach out if you have any additional questions.

KENVIRONS
Christopher P. Wathen, P.E.
Vice President
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Office (502) 695-4357 | Cell (502) 592-2617
Celebrating 50 Years! (1975-2025)